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**INDIAN AGRICULTURAL
RESEARCH INSTITUTE, NEW DELHI**

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THE JOURNAL

OF THE

Jamaica Agricultural Society.

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FOR THE YEAR 1939.

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THE JOURNAL

OF THE

Jamaica Agricultural Society.

The more people do the more they can do; he who does nothing renders himself incapable of doing anything; while we are executing one work we are preparing ourselves for undertaking another.

Vol. XLIII.

JANUARY, 1939.

No. 1

BOARD OF MANAGEMENT.

The regular monthly meeting of the Board of Management of the Jamaica Agricultural Society was held at the office of the Society, 10-12 North Parade, Kingston, on Wednesday, the 7th day of December, 1938, at 11.30 a.m.* There were present: Hon. Geo. Seymour Seymour, O.B.E., First Vice-President, in the Chair; Rev. W. J. Thompson, and Mr. U. Theo. McKay, Second and Third Vice-Presidents, respectively, Mr. W. L. Barnett, M.A., B.Sc., F.I.C., Acting Director of Agriculture, (*ex officio*), Messrs. R. A. Burke, T. J. Cawley, T. P. V. McDaniel, D. D. Phillips, C. L. A. Stuart; Mr. A. P. Hanson, Supervisor of Instructors, and the Secretary, Arthur Thelwell.

Apologies for Absence.

Apologies for absence were submitted on behalf of Hon. M. H. Segré, Messrs. W. Harper Watson and C. O. Cover.

Confirmation of Minutes.

(a) *Of Regular Meeting held 2.11.38.* The minutes of the regular meeting held on the 2nd November having been circulated they were taken as read, and on the motion of Rev. W. J. Thompson, seconded by Mr. C. L. A. Stuart, were confirmed.

(b) *Of Special Meeting held 24.11.38.* The minutes of the special meeting held on the 24th November having been circulated they were taken as read, and on the motion of Mr. Thompson, seconded by Mr. McDaniel, were confirmed.

Cercospora Leaf Spot of Bananas.

Mr. Cawley moved the adjournment of the meeting to call attention to the menacing danger of *Cercospora* Leaf Spot of bananas to the banana industry of the Island. He said the matter had been discussed several times by the Board, and at one time the spread of the disease was attributed to the inferiority of the soil. The disease had spread from one end of the Island to the other and the reaction was evident in the high incidence of poor fruit. From the evidence given by Mr. C. E. Johnson, Manager of the Jamaica Banana Producers Association before the Royal Commission, it was evident that others took a view

similar to that held by the Society, namely, that there was real cause for alarm. Instructors had been assisting the Officers of the Agricultural Department in a series of Banana Improvement Campaigns, still the disease had continued on its course, and unless something on a very large scale was done by Government, apart from the efforts of private individuals and Fruit Companies, the position would become untenable. The Board of Management representing as it did a large percentage of the agriculturists of the Island who were mostly small farmers, would not be doing its duty if it did not bring forcibly to the attention of Government that it was now necessary for immediate and proper remedial and control measures to be instituted. It was apparent that it was necessary for the soil as well as the plants to be treated. He understood that the Scientific Department was of opinion that spraying rather than dusting would be the more effective method of control. This, of course, created a more difficult situation. The small farmer had exhausted his resources and was now unable to contribute to the fight against the disease. He felt that it was the duty of the Board to place these facts forcibly before Government and impress upon them the necessity of putting means within the reach of not only the large planters but also of the small farmers.

Mr. Burke seconded the motion and added that Government should be advised of the willingness of the Society to place its complete organization at their disposal to do everything to combat the disease.

Mr. McKay in supporting Mr. Cawley's statement said that the situation was serious when it was considered that over fifty per cent. of the Revenue of the Colony was obtained through the Industry. He said Scientists all over the world had failed to find a cure for either Panama Disease or the Cercospora Leaf Spot. It was necessary, therefore, that different practical methods should be tried. Every single possible force should be mobilized, and every single sympathy enlisted in an effort to fight the disease. Small farmers who used to cut 40 stems of bananas weekly could now cut only 10, of which 50% was often rejected because they were considered to be poor quality fruit. He thought it would be a very good thing if the Board could be instrumental in getting a Conference of the Managers of the Fruit Companies or their agents, and agents operating in the parishes, and some growers, to deliberate on the question of what was "poor fruit." He felt that if the Companies continued to reject short-fingered fruit the producers would soon become bankrupt. He understood that the purchasers abroad were not prepared to pay for the short-fingered fruit because it took more of them to weigh a ton. The short-fingered fruit were not the result of ignorance or laziness on the part of growers, but were due to conditions over which they had no control. A tree would shoot a ten-hand bunch, and after five weeks an attack by Leaf Spot arrested its development and the result was short-fingered fruit. He hoped that the Government and the Fruit Companies along with practical planters would be able to devise such means as would save the Banana Industry of Jamaica, which Industry if wiped out would leave the Island in a very parlous condition.

Mr. McDaniel added his support and suggested that new industries such as the Cement Industry should be sponsored with a view to retaining if even a small portion of the revenue that would be lost were the Banana Industry seriously impaired.

Mr. Thompson also spoke.

The Acting Director of Agriculture said he was very pleased that Mr. Cawley had introduced the matter. The subject had been

receiving much attention from Government although their efforts were not perhaps well known to the public. He had been going into the question of this Leaf Spot very carefully and had obtained information from experts of various Fruit Companies and from experts in Central America. With the full authority of Government he had conferred with the three Fruit Companies operating in the Island and a decision had been arrived at to launch an intensive campaign throughout the Island. The disease was propagated by a fungus and could be kept down by spraying. The Campaign would be carried on with spraying as well as with cultural operations. The details would be worked out as soon as possible and it was hoped that the effect of the campaign would prove of great benefit to the Island, not only in reducing the disease, but in improving the quality of fruit. The data obtained from the experiment in dusting, spraying and fertilising, which had been undertaken on Demonstration Plots would prove useful in the Campaign. The United Fruit Company had done a considerable amount of spraying. All the information obtained from all the different sources were being pooled for consideration. It was proposed to reduce the dusting process to a certain extent, and confine this mostly to the Experimental Plots. Experiment was in progress to try to improve the sticking properties of the sprays to be applied. Representatives of the Department of Agriculture, the Fruit Companies and the Island Treasurer were to meet in a Conference and decide on the policy and details. The Governor was determined that the campaign should be carried out along the very best lines. It was realised that the best way to tackle this problem was to launch the Campaign well ahead of the wet season. He wanted the Board to realise that Government was taking very active steps in this matter.

Mr. Stuart suggested that a Deputation should wait on Government to impress upon them the inability of the small farmer to finance any scheme for the control of the disease; he, the small farmer, was practically being squeezed out of the Industry. The response to the call for increased cultivation often resulted in a greater attack by Panama Disease which made the position worse. The matter was very serious taking into account the amount of labour throughout the Island which the Industry employed.

The Chairman said he did not think there was any necessity for a deputation. Government was fully aware of the situation and every effort was being made to assist in every possible way—financial assistance would be provided where it was found necessary, and the terms proposed were such as would be acceptable to those who had to avail themselves of such help. The recommendations of the Conference would be placed before the Legislative Council. He suggested, therefore, that the Board of Management wait until these recommendations and a pronouncement by Government regarding financial help were made public before taking the matter any further.

The pronouncement made by the Acting Director of Agriculture gave the public the necessary information, and he thought the matter should be deferred until the next meeting.

Mr. McKay said in that case it would be only necessary once more to place the views of the Board before the Government and with Mr. Cawley's permission he would move the following resolution:—

"That the Board of Management of the Jamaica Agricultural Society bring to the notice of Government the very serious menace to the Banana Industry of Jamaica by Leaf Spot Disease, and would urge the necessity of taking immediate and effective steps to control this disease."

To regularise the proceedings Mr. Cawley withdrew his motion for the adjournment of the meeting.

Mr. McKay then moved the suspension of the Standing Orders to admit the Resolution. This was seconded by Mr. Cawley who also seconded the resolution.

The Resolution was unanimously carried.

The proposal of Mr. Burke that the Board should request the Department of Agriculture to invite Mr. Cawley and the Secretary as representatives of the Society to attend the Conference which it was proposed to hold was agreed to.

Matters Arising out of the Previous Minutes.

(a) *Letter from the Director of Railway re Free Railway Ticket for Members.* The following was read:—
No. 1053/6422.

24th November, 1938.

"In reply to your letter, No. 544, of the 14th October, 1938, I have to inform you that your letter was placed before the Railway Advisory Board at a meeting held on the 15th inst., and it was agreed that the request of your Society, that Ordinary Tickets and not Cheap Fare Tickets should be issued to the Members of the Board of Management, could not be acceded to."

(Sgd.) H. C. POWELL,

Director Jamaica Government Railway.

Mr. McKay expressed himself as being very dissatisfied with the reply from the Director of Railway. He said it was due to the members who gave so much of their time to the agricultural affairs of the Island, that they should be issued Railway Passes which carried full responsibility of Government for the safety of the passengers. He said he regarded the letter as an insult to the members of the Board.

The Chairman said he would take up the matter with Government.

(b) *Letter from C.S.O. re Cement Factory.* The following was submitted:—

No. 4161/32.

21st November, 1938.

"I have the honour to acknowledge the receipt of your letter, C.S.O. No. 87, of the 14th November, 1938, asking that the Government receive a Deputation from your Society in regard to the question of the erection of a local cement factory, and to inform you that your Society's proposals are being examined and that when the examination has been completed you will again be communicated with in the matter."

(Sgd.) J. D. LUCIE SMITH,

for Colonial Secretary.

This was noted.

Mr. Thompson retired from the meeting.

(e) *Letter from Acting Director of Agriculture re Importation of Goats.* The following was submitted and noted:—

No. DA: 285.

22nd November, 1938.

"With reference to your letter, No. 629, dated 16th inst., on the subject of the importation of goats, I have to inform you that I shall bring this subject to the attention of Mr. G. A. Jones when he assumes the position of Director of Agriculture shortly, and that the final decision must be left to him."

(Sgd.) W. L. BARNETT,

Acting Director of Agriculture.

(d) *Remarks by Supervisor re White Yam Heads.* The Secretary stated that in accordance with the directions by the Board he had made an effort to get White Yam Heads (from those who took part in the White Yam Competition) for distribution in other areas. In reply to his communication the Supervisor had advised him that it was difficult to get the Yam Heads, especially at this time of the year.

The Board felt that prize winners in the White Yam Competition should give a proportion of the heads from their entries judged in the Competition.

On the motion of Mr. Cawley, seconded by Mr. McKay, it was decided that in future one-half of the Yam Heads from each winning entry in the Competition should become the property of the Society.

The Secretary was directed to include this Rule in the Rules governing the White Yam Competition.

(e) *Evidence for Royal Commission: Report of Deputation.* Mr. Seymour said the deputation appointed by the Board had appeared before the Royal Commission and given evidence. The proceedings had appeared in detail in the Press and the Memorandum which was submitted to the Commission was being published in the Journal.

A vote of thanks, moved by Mr. Burke and seconded by Mr. Stewart, was passed on behalf of the Deputation which waited on the Royal Commission.

(f) *Individual Membership of the Society: Definition.* The Secretary stated that as directed by the Board he had communicated with the Solicitors as to whether an individual member of a Branch Society had the same rights as a Direct Member of the Parent Society. In reply he had received the following communication:

December 7, 1938.

.....
Under paragraph 3 of the rules headed "Membership" it is provided that the Society shall consist of:— (a) direct members, (b) affiliated branch societies, (c) affiliated parish or district associated branches, (d) certain ex officio members, (e) certain honorary members.

Paragraphs 9 and 10 of the Rules provide for the subscription payable by members and for their enrollment. It will be noted that no member shall enjoy any benefits or privileges of the Society until he is enrolled.

Provision is made under paragraph 11 and 12 of the Rules for local agricultural Societies to be affiliated with the Jamaica Agricultural Society or for a number of local societies to form associated branches and be affiliated, but the individual members of these local societies do not hereby become members of the Jamaica Agricultural Society. For any individual to become a member of the Agricultural Society it is necessary for him or her to comply with the requirements of paragraph 9 of the Rules.

In the circumstances it is clear that individual members of branch societies are not as such members of the Parent Society nor entitled to the rights and privileges enjoyed by the members of the Jamaica Agricultural Society."

(Sgd.) MANTON & HART.

It was decided that the Rules should be so amended that members of Branch Societies should be recorded as members of the Society.

(g) *Marketing Scheme.* This matter was deferred.

Statement of Accounts.

Statement of accounts for November was laid on the table and the Secretary was directed to circulate the same to the Board as usual.

Re Recommendations of Auditor.

Mr. Cawley said he understood that the method of keeping the accounts had been criticized by the newly appointed Auditors and the changes suggested by them had been adopted by the Board.

The Secretary stated that he had discussed these matters with the Accountant and they had carefully gone into the details and agreed that certain useful alterations could be made. He had then interviewed the Auditors and all these proceedings culminated in the recommendations which the Board adopted at their last meeting.

Questions.

Mr. Cawley asked if the matter of the appointment of Auditors would be on the Agenda of the next Half-Yearly meeting.

It was decided that the item should be put on the Agenda.

Notices of Motions.

(a) *Mr. Maxwell re Bye-Laws of the Society.* This matter was deferred as Mr. Maxwell was not present.

Communications.

(a) *Letter from Solicitors covering account for professional services.* The letter was submitted and the accounts presented showed a total of 15 guineas for services rendered from August, 1934 to September, 1938.

On the motion of Mr. Cawley, seconded by Mr. Stewart, and unanimously carried, payment of the account was authorised.

Incorporation of Society.

Mr. Cawley asked if the question of the incorporation of the Society had been taken any further.

The Secretary replied in the negative, and the Board decided that the Secretary should consult with the Board's Solicitors and take the necessary action.

(b) *Memo from the Department of Agriculture—Comments made by Hon. A. C. Barnes re Society.* The following communication from the Government, forwarded through the Acting Director of Agriculture, was read and noted:—

14th October, 1938.

"Upon my demitting office, consequent upon my resignation from the Public Service, I desire to pay a tribute to the staff of the Department of Agriculture, of all grades, whose devoted service has enabled considerable progress to be made since I assumed duty in September, 1933. I feel it would be invidious to mention any particular officers, as I am conscious of the whole-hearted co-operation of the heads of all divisions and their staffs. Senior Officers have willingly accepted increasing responsibilities and duties, which they have carried out loyally and cheerfully.

2. I feel that the staff of the Department of Agriculture is to be warmly complimented upon the sound progress which has been made during recent years. Work of great importance to Jamaica's agriculture has been done, and I believe that the Department now stands high in public respect and esteem. A welcome feature of the period of my service has been the increasing co-operation and the development of a better understanding between the Jamaica Agricultural Society and the Department, which I take pleasure in acknowledging."

(Sgd.) A. C. BARNES,

Director of Agriculture, and Land
Settlement Commissioner.

6th December, 1938.

Half-Yearly Meeting.

Half-Yearly Meeting. The following Memo from the Secretary was read and adopted and a Committee of the First Vice-President and the Secretary appointed as per paragraph 2 of the Memo:

6th December, 1938.

"The Half-Yearly meeting has been fixed for Thursday, the 12th January.

2. A small Committee of the Board should be appointed to consider the Agenda and the resolutions.

3. It is proposed to alter the system of Roll Call by asking members and delegates to register at the door on arrival. Tickets will then be issued to each person present—red, for Direct and other members, and blue for delegates, so as to identify voters."

(Sgd.) ARTHUR THELWELL,
Secretary.

Reports from Committees.

(a) *Instructors.* The following was submitted, and on the motion of the Chairman, seconded by Mr. McDaniel, the report was adopted:—

7th December, 1938.

To the Board of Management:

The Instructors Committee met this morning and beg to report as follows:—

1. That the services of the Foreman in charge of the Buckingham Plot, has been dispensed with.
2. That the travelling expenses of the Bee Instructor should be based on the same rates as that for Instructors, and that the Secretary should direct the travelling.
3. That the Foreman in charge of the Charlton Plot should be warned very strongly that unless he sends in proper returns in connection with the plot his services will be dispensed with.
4. That Foreman Harriott, who is ill be given two months' full pay. The matter to be brought up again for reconsideration.
5. That Foreman Mullings who sustained a broken leg be given leave on full pay.
6. That the question of Instructors' work in school gardens has been referred to the Instructors' Conference.
7. That Instructor Kelly is recommended for a loan of £25, for assisting him in the purchase of travelling equipment.
8. The following applications for affiliation are recommended:—
Cambridge—(St. James);
Nightingale Grove—(St. Elizabeth);
Welcome—(Hanover).
9. That the Secretary has been instructed to arrange for three Instructors to attend and assist in the Hanover Show to be held on the 27th December, 1938.
10. That Supervisor Bacque has been granted 8 days sick leave.
11. That the development of Vere be referred to the Board.

(Sgd.) W. L. BARNETT, *Chairman.*

ARTHUR THELWELL, *Secretary.*

Mr. Cawley asked if any action had been taken to find out the position of the Society in regard to the new Law in operation regarding Employers' Liability for certain protection of employees.

The Board directed the Secretary to confer with the Legal Advisors in regard to this matter and report to the next meeting.

(b) *Re Country Fires Law.* It was decided that this matter be postponed to the next meeting.

(c) *Tenders for supplies of Foodstuffs to Government Institutions.* The following was submitted:—

6th December, 1938.

The Tenders Committee beg to report as follows:—

- i. A meeting was held on the 30th November.
- ii. A schedule of prices was arranged. These prices are based on what the Committee regards as economic value for local foodstuffs based on the cost of production.
2. The Committee recommends that a deputation be appointed to wait upon Government to discuss the general question of tenders with special reference to prices.

(Sgd.) ARTHUR THELWELL,
Secretary.

On the motion of Mr. Cawley, seconded by Mr. McKay, the report was adopted and the following deputation named:—Hon. G. Seymour-Seymour, Messrs. U. Theo. McKay, T. P. V. McDaniel, D. D. Phillips and Hon. C. A. Reid.

(d) *Cane Farming Industry.* The Secretary reported that he had called a meeting of Cane Farmers in order to endeavour to arrive at a satisfactory basis for the payment for farmers' cane. A sub-committee had been appointed to collect the necessary data. As soon as this was collected and collated a deputation would wait on the Sugar Control Board to discuss the question.

Diseases of Plants and Animals: Insect Pests.

(a) *Panama Disease of Bananas—Report for September and October.* These reports on the incidence of Panama Disease were laid on the table.

The Secretary stated that copies had been issued to individual members of the Board.

Office.

(a) *Secretary's Report on Travelling for November* was presented and noted.

Juvenile Societies.

(a) *Grant of £25 from Jamaica Welfare Ltd.* The Secretary stated that on the initiative of Mr. U. Theo. McKay, the Jamaica Welfare Ltd. had made a grant of £25 to the Society for the encouragement of the Juvenile movement of the Jamaica Agricultural Society.

The Secretary was directed to convey the thanks of the Board to Mr. McKay for his efforts in the matter and to the Jamaica Welfare Ltd. for their generous contribution.

Applications for grants in connection with Juvenile Branches were considered as follows, and a grant of 10/6d. was authorised in each instance:

- (b) Application from Mocho School for grant for School Exhibition and Juvenile Show.
- (c) Application from Content for grant.
- (d) Application from Cairn Curran for grant.
- (e) Application from Springfield for grant.

Shows.

(a) *Moravia—Application for date 15/12/38 for Local Show.* The date was approved.

(b) *New Green—Application for grant for Local Show.* This application was submitted. The Secretary stated that the New Green Branch had staged a very successful Local Show last year and now proposed to have another Show. He suggested that a grant of one guinea be made. The Board agreed to this.

Competition.

(a) *Application from Maidstone Bourbon Branch for grant for Vegetable Competition.* The application with details regarding the proposed competition was submitted and a grant of 10/6d. was authorised.

Authorised Persons.

(a) *Return of Arrests for quarter ending 30/9/38.* This was submitted.

The Secretary was instructed to publish a summary in the *Journal* as usual.

Resolutions from Branches.

The Secretary was directed as to the various Government Departments to which the following resolutions should be submitted:—

- (a) Mt. Regale re Land Settlement.
- (b) Grange Hill re Land Settlement.
- (c) Frankfield re Land Settlement.
- (d) Devon Potato Growers re appreciation of work of Marketing Division.

(e) St. Catherine Branches Associated re:—

- (i) Roads (13 resolutions).
- (ii) Bridge.
- (iii) Land Settlement (5 resolutions).
- (iv) Water Supply.
- (v) Protection from Fire—Bog Walk.
- (vi) Parochial Dispensaries (2 resolutions).
- (vii) Yaws Centres (2 resolutions).
- (viii) Medical Examination for Food Vendors.
- (ix) Maternity Nurse.
- (x) Traffic Signs for School.
- (xi) Agricultural Foreman.
- (xii) Government School for Paul Mountain.

New Members.

On the motion of the Chairman seconded by Mr. McDaniel the following were elected to the membership of the Society.

J. W. Peskett	...	...	...	Rio Bueno.
E. Segre Lewis	...	...	...	Savanna-la-Mar.
W. J. Thompson	...	...	...	Savanna-la-Mar.

Other Business.

(a) *Resolution from Hanover Parochial Board re Cercospora Leaf Spot of Bananas.* The Secretary was directed to forward this resolution to Government.

(b) *Sir Algernon Aspinall Testimonial Fund.* Circular issued from the West India Committee advising the retirement of Sir Algernon Aspinall from the Secretaryship of the West India Committee, and that a presentation of a Testimonial would be made to him and soliciting from members of the Committee contributions to the Fund, was submitted.

On the motion of the Chairman seconded by Mr. Cawley it was agreed that a contribution of £1 1s. 0d. should be made and the Secretary was instructed to forward this amount to the Treasurer of the Fund.

(c) *Resolution from Phillipsburgh Branch re Road.* The Secretary was directed to transmit this resolution to the Parochial Board of St. Catherine.

(d) *Resolution from Springfield Branch re Land Settlement.* The Secretary stated that this resolution had been forwarded to the Land Settlement Commissioner.

(e) *Resolutions from Clarendon Branches Associated re (i) Ruling re Membership of Branch Members.* This resolution stated that the ruling with regard to the status of members of branches in relation to the Society as given by the First Vice-President of the Society was very unsatisfactory and requested that the ruling should be rescinded or the Rules of the Society so amended that members of the Branch Societies should be regarded as members of the Society.

The Secretary was directed to inform the Branch that the matter was already receiving attention.

(ii) *Roads.* The Secretary was instructed to submit the six resolutions relative to roads to the proper authorities.

(iii) *Government Dispensary for Brandon Hill.* The Secretary was directed to submit this resolution to the Director of Medical Services.

(iv) *Sign Post for Beckford Kraal.* The Secretary was instructed to submit this resolution to the Director of Public Works.

(v) *Purchasing of Citrus Fruits.* The Secretary was directed to place before the Half-Yearly Meeting this resolution which proposed that Government exercise strict measures in the purchasing of Citrus Fruits so as to avoid waste in the Industry.

(vi) *Price for Small Farmers' Canes.* The Secretary was directed to submit this resolution to the Half-Yearly Meeting.

(f) *Letter from St. Andrew Branches Associated re (i) Returns from Low Temperature Station.* This letter referred to the request made by the St. Andrew Branches Associated that the Board obtain from the Low Temperature Station, details of its transactions with regard to potatoes, beans, etc., with the agriculturists of St. Andrew.

The Secretary was directed to endeavour to obtain the information asked for.

(ii) *List of Membership of the Society.* This letter referred to a previous request made by the St. Andrew Branches Associated for the publication and circulation of a complete list of the Local Membership of the Society to all Branches and Association of Branches.

The Secretary was directed to advise the Branch that although the Board could not accede to the request in its entirety, an effort would be made to publish annually a list of the Branches of the Society with their Secretaries.

(g) *Keynsham re (i) Voters' Roll.* The Secretary was directed to forward to the Collector of Taxes this resolution which asked for a Voters' Roll to be put up at the St. Paul's Church, Keynsham district.

(ii) *Traffic Signs.* The Secretary was directed to submit this resolution to the Island Traffic Authority.

(h) *St. Elizabeth Branches Associated, re:—(i) Land Settlement.* The Secretary was directed to forward to the Land Settlement Commissioner the six resolutions dealing with the question of Land Settlement.

(ii) *Basket-making Industry.* The Secretary was instructed to place this matter on the Agenda for the Half-Yearly meeting fixed for the 12th proximo.

(iii) *Establishment of Buying Centre for Vegetables at Newmarket.* The Secretary was directed to take up this matter with the Marketing Officer.

(iv) *Establishment of Dental Clinics in Schools.* The Secretary was directed to submit this resolution to the Director of Medical Services.

(i) *Report of Department of Agriculture, 1938—Comment re work with Society.* An extract from this report embodying comments re work of that Department with the Society was submitted and noted.

The Secretary stated that this extract would appear in the Journal.

(j) *Application from Eccleston Juvenile Society for grant for Prize Giving.* This application was submitted and a grant of 10/6d. was authorized.

The meeting adjourned to Wednesday, the 4th day of January, 1939, at 11.30 a.m.

HOUSEHOLD HINTS

Cooked Beet.—Is an item which deserves attention: Beet should be steeped in brine for 10 minutes before cooking (1 oz. Table Salt to 1 gallon water). After cooking the skin should be peeled off when the Beet will be seen to be of a bright red colour.



1^{ST.}

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ADDRESS BY THE RIGHT HONOURABLE LORD OLIVIER.

THE Right Honourable Lord Olivier of Ramsden, England, attended a Special Meeting of the Board of Management of the Jamaica Agricultural Society, on Thursday, the 24th November, 1988.

The Board room was filled to capacity with a representative audience.

Lord Olivier was welcomed by the Chairman, the Rev. W. J. Thompson, Second Vice-President, and addressed the meeting on the topic of "AGRICULTURE AND AGRICULTURAL ORGANISATION."

He said that he had hoped to have some members of the Legislative Council present, and he was pleased to see the Honourable Members for St. Ann and Trelawny.

Jamaica was passing through a time of great stirring up and of much consideration about agricultural affairs, and it was proposed to have immediately a great extension of small holdings in the Island. Speaking from personal experience he felt that with the complete change of executive in the Island,—a new Governor, a new Colonial Secretary, and other officers who would have to deal with such schemes, it would be very difficult, in fact, almost impossible for them to appreciate immediately the work of the Jamaica Agricultural Society and it was still more difficult for a Royal Commission chiefly composed of visitors from England to understand in the course of a few weeks just what the significance of the Jamaica Agricultural Society was. It was very necessary that the significance of the work of the Society should be very strongly insisted upon in the Legislative Council for several years to come. He himself knew that the Jamaica Agricultural Society was the most important organisation existing in Jamaica. It represented directly the people who were doing the most in the planting and cultivating work of the Island. It was for that purpose and on that basis that the Society was built up, and he was aware that members of the Board of Management thoroughly understood that.

Lord Olivier then referred to Mr. G. A. Jones, C.M.G., the newly appointed Director of Agriculture, who would soon take up his duties in the Island. He said Mr. Jones was a very able champion of the psychology of the Agricultural Society. Mr. Jones, he said, began life in the West Indies as a Book-keeper on a sugar estate, and went on to be planting attorney of the largest sugar concern in the West Indies. He organised the Cane Farming Industry of Trinidad, into co-operative societies, so that the cane farmers could deal co-operatively with the Factory Overseers. All the co-operatives in each group pooled their canes and thus they were put in a strong position. He did not know what organisation of cane farmers existed in Jamaica, but while there was a Sugar Industry being more centralised, it was absolutely necessary for cane farmers to have an organisation to represent their interests. This co-operative system could also be extended to other industries such as corn production, citrus and coconuts—to which a good deal of consideration was already being given. The Society had taken great interest in all these as well as other industries, and it was their duty to influence Government to have these industries developed.

Generally when new officers came to Jamaica they were at a loss to understand what the Agricultural Society was, and what was its purpose. He, himself had been an agriculturist, and had been Secretary to the Board of Agriculture in England. He thought it ridiculous either in

Jamaica, Trinidad, or anywhere to speak about a Director of Agriculture. No farmer or small holder anywhere was going to have his agriculture directed for him. The Official Agriculturist always found himself up against the small farmer. In England the farmers spoke of departmental interference as "White Hall Agriculture" and strongly objected to being directed or bossed.

The Department of Science and Agriculture he said was a most indispensable auxiliary to agricultural work, because it should provide up-to-date information on the technical lines on which progress might be made. Its collected information ought to be very useful to the members of a Society such as this. The English as a race was a rather bossing one, but Mr. Jones, who was a Welshman belonged to a race which was conciliatory and preferred to gain their ends by reasoning and persuasion. Mr. Jones, Lord Olivier said, had worked in co-operation with all classes of agriculturists. As an introduction to Mr. Jones he had asked the Secretary, Mr. Thelwell, to reprint extracts from a report on Agriculture in Jamaica which was made by Mr. Jones for the West Indian Sugar Commission of 1929-30.

The Report was written after Mr. Jones had gone all around the West Indies with Mr. Semple and himself (Lord Olivier). In the Report Mr. Jones had said: "The standard of living and the housing conditions of very large numbers of the rural population in Jamaica is far higher than that in the other West Indian Islands and in British Guiana." Referring to the Jamaica Agricultural Society, he said: "Undoubtedly the greatest factor in the development of a prosperous peasantry has been the steady work done by the Jamaica Agricultural Society."

It was evident that Mr. Jones would be coming to Jamaica with the friendliest possible attitude towards the Jamaica Agricultural Society.

Agriculture, as everyone who has been engaged in farming knew, is an art. It is a personal relationship between the ability of man and the forces of nature. He had himself done all the work of a vegetable garden where he grew provisions for his family, and he knew the difference between a man who was by nature a cultivator and the man simply hired to do cultivating. The best cultivator of vegetable gardening he ever knew and employed was a man who was by trade a shepherd. This was accounted for by the fact that that man had been in close touch with nature. When he had employed a professional gardener he had found that he mostly desired to mow lawns and to clear paths. His experience when he was in charge of a large garden in Sussex had been that he could not get a garden labourer who knew exactly what he ought to do and could not be left alone to pursue the work he was told to do.

This relationship between man and nature was so personal that in all the early civilizations of the world agriculture had been regarded as a sort of religious mystery. People worshipped the powers of the earth. They worshipped the spirits of animals and plants because they knew they were living things which responded to contact. They were not so fond of the Air, because they suffered through droughts, storms and hurricanes, so while they spoke of "Mother Earth" they did not regard the "Prince of the Powers of the Air" as being so friendly to human beings. They identified him with Satan.

In Africa the basis of the social life of the native groups was agriculture, because it was realised that man's first need was to feed himself and his family. Subsequently when Africans were brought to Jamaica they were employed to carry on their own cultivations and maintain

food supplies in the mountains. The primitive African tribes so strongly recognised the powers of the Earth that they associated with them the powers of the spirits of their ancestors and buried their dead in their gardens because they felt that their ancestors would co-operate with the spirits of the Earth to favour their cultivations.

The successful cultivator and stock-breeder loves his work and finds constant pleasure in it. There was no better recreation for the intensive sedentary worker than to work for a few hours digging in his garden and planting, and for successful enthusiasm in agriculture, one had to go to men who were intensive workers. He referred to a former Director of Agriculture, Mr. H. H. Cousins, who was vastly interested in stock-breeding. He did a great deal of good work in the Colony although at times he did not see at once with some of the practical agriculturists.

When the Department of Public Gardens and Plantations was inaugurated in Jamaica, the first purpose was that the volume of exports of certain staples should be increased. The then Governor, Sir Henry Blake, with the object of producing an increased export established a Cinchona plantation and a grape-fruit grove. An effort was made also to increase the production of coffee and cocoa; then Sir Henry Blake initiated a systematic improvement of the cultivations of small settlers. To further the work two Government Instructors, Messrs. William Cradwick and William Thompson were appointed. Mr. Cradwick developed into one of the most able agents of the policy of the Agricultural Society. He was from Mereworth in Kent, the county in which much fruit was grown, and in addition to his other qualifications he was a very good pruner of trees. He did extensive work in cocoa pruning in Jamaica.

Mr. Thompson was primarily a gardener and latterly did very efficient work in the Kings House gardens. These men were not at first welcomed on the small holdings because it was believed that being envoys of Government, their object was to spy on settlers with a view to increasing their taxes. Their practical advice was often regarded as "buckra foolishness."

It was at this stage that he (Baron Olivier) came to the Island as Colonial Secretary and he realised that the country needed more instruction in agricultural affairs. The Board of Agriculture was set up as a sort of go-between. There was a Director of Public Gardens and Plantations who had definite responsibilities. He was not supposed to be a Director of Agriculture. He (Baron Olivier) however wanted something more in the direction of active help and tried to build up a service that would meet such a demand. These activities, however, did not meet the requirements. It was found that they did not get in touch with the small holders. After much consideration of this matter by the Board of this Society and by the Government it was recognised that a special class of Instructor was desirable. They did not think of employing men from Kew but looked around for local men well-versed in the work. One of these was a retired Solicitor, Mr. Jack Palache who had a variety of intelligent tastes. He was very fond of horses and was possessed of a fanaticism for gardening. The other man was Mr. Young who was both a great horse master and very fond of fruit cultivation. These two gentlemen were the first part-time Agricultural Instructors for the Jamaica Agricultural Society. Shortly after that he (Baron Olivier) left the Island. The Board began to increase the number of Instructors and employed whole-time officers.

When he returned to the Island he found a working body of men carrying out what he had visualised as the help necessary for the small

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holders. Men who might have been school masters and small cultivators themselves, but who had regarded cultivation as an art and were able to instruct the people were actively carrying out the service. The original aim of the Board of Agriculture was being achieved.

At the same time the Department of Science and Agriculture had been developed to help the larger planters. The United Fruit Company assisted in this and he (Baron Olivier) was bound to admit that that company did more for Jamaica in that respect than the Department of Agriculture. At that time the Department of Agriculture was not able to serve the small cultivator in any considerable measure, but the small cultivator was then responsible for about 70% of the exports of the Island.

At that time however, a considerable quantity of logwood was being exported, and that was not a crop on which instruction was necessary. The exportation of logwood was bigger than that of sugar, an unenviable record for an agricultural country.

Sir Anthony Musgrave was the first Governor who did justice to the small cultivators of this Island. Sir Henry Blake continued this good service.

After he, (Baron Olivier) left the Governorship of Jamaica he served on the Board of Agriculture and Fisheries in England. Along with this experience and his association with Sir Horace Plunkett, and Mr. D. P. Gill and the well-known Sir Horace Plunkett Foundation, he learnt a great deal about agricultural organisation, agricultural education and agricultural co-operation. It was well-known that these gentlemen succeeded in organising the milk supply of Ireland, on a co-operative basis. Everyone would realise that this was a long and difficult business and a great task to have accomplished. He had also seen the effect of this co-operation in Switzerland, which country does not, as was often believed, depend on tourists for its existence, but owed its well-being to its agricultural and manufacturing activities. The cultivator took pride in his house and cultivation. Each canton or parish was well organised. Their entire milk supply was controlled, and local organisations took care of the distributions to homes and hotels, and also to the institutions where cheese and other milk products were manufactured.

In some quarters the establishment of a creamery system in Jamaica was advocated. He (Lord Olivier) thought this was worth a trial, but he feared it would not be an easy task. A reliable raw milk supply would be an absolute necessity, and the questions of refrigeration and transport would have to be given due consideration. An effort was being made in England to build up a milk supply for the use of the public and for school children. As a result the price of milk had been increased because it was necessary that the scheme should be properly organised.

When he (Lord Olivier) was on the Board of Agriculture the present Lord Runciman made an effort to organise a scheme of agricultural education. On the inspiration of the Irish Agricultural Organising Society, an English Agricultural Organization was formed. Mr. Runciman set to work to re-enforce his scientific department, collecting the best discoveries of agricultural science and machinery. They had in England a very complete scheme at the present time. They had various local Research Institutes for Scientific purposes financed from public funds. These institutions collected information, and found out scientific methods of agriculture, of handling stock and produce and did practical experiments with manures. In England they had these

Research Institutes on which the Department of Science and Agriculture here was patterned. These Institutes did no teaching, but were in some cases attached to Agricultural Colleges. That arrangement is followed in the Royal College of Tropical Agriculture in Trinidad. Besides that, they had in almost every county Farm Institutes where boys of the poorer classes attended, selected from those who had left the Elementary schools. The Training Centres at Hope and Grove Place corresponded to these centres in England.

There was prevalent a perverse theory, not only in England, but in other parts of the world, that because agricultural labourers were required, the boys and girls in the county elementary schools should be trained to be farm labourers. They could not be so trained and it should not be attempted. Continuing Lord Olivier said he thought the institution of School Gardens might be very useful, but he regarded them simply as auxiliaries to Nature Study. Every boy and girl who was interested in plants and animals should have every opportunity of gaining practical education in this connection. It might be useful if the schools took in the rearing of rabbits and goats as well. The children should be interested in the psychology of all growing things so that they might understand the art of cultivation and the handling of animals. This agricultural teaching, however, should not be confounded with the making of an agricultural labourer. He noticed in the Press that a lady member of the Royal Commission had asked if the school gardens could not be made subsidiary to feeding the children in schools. From his observations during his residence in the Island he had sometimes suspected that these gardens were rather subsidiary to the feeding of the school master and his family, which might not be a bad thing either. The School Garden should be a part of the system of general education and training of the mind. For special agricultural training boys should be sent to the Farm School. A boy with an inclination in this direction would be greatly benefitted by a course in that Institution. He had noticed that one member of the Commission asked if it would not be a good thing to send the Agricultural Instructors with scholarships to the Imperial College of Tropical Agriculture in Trinidad. He thought it might be just about as useful to send them to Keble College, Oxford. Why should men be sent from a country of small settlers to a College for Research in Agriculture and Science and which trains managers for large cultivations and has no means whatever of demonstrating and does not attempt to give instruction in the work of small settlers cultivations. The College was not meant to be everything more than a Research Station and a Training College for higher grades. It definitely was not a training ground for those required to disseminate knowledge of agricultural practice to small settlers. Many of the students in the College were graduates from Universities such as Oxford and Cambridge who desired to specialize in certain phases of agriculture. Many of them were students from Colonies some of whom had won scholarships and were destined to pursue higher agricultural studies. They were hardly in any case men who were destined to take up positions such as that of an Agricultural Instructor in Jamaica.

He was sure they were all here agreed as to the knowledge and spirit and genius that agricultural training required in the Island. The Jamaica Agricultural Society, after long and painful experience had evolved its knowledge and it would be difficult for any new Governor or Director of Agriculture, or even a Royal Commission to formulate a more useful policy without sufficient time to examine and prove

what might appear to be wiser proposals. In his book (*Jamaica the Blessed Island*) he had tried to disabuse the mind of anyone who read it of the notion that the Jamaican planters or cultivators had not tried to do anything for themselves. They had been up against difficulties for over 100 years and almost every minor product that could be tried in the Island, had been tried. They had been fighting diseases of plants and animals and they knew that the Department of Agriculture could give them considerable help in connection with such things. The Board of Agriculture in England began as a Department for controlling and exterminating the potato bug. One of the most important functions of a Department of Science and Agriculture was to find out, as it was trying to do here and in other parts of the West Indies, means of dealing with destructive insects and pests. It was necessary that they should have Inspectors to see that the law was carried out. That side of agriculture should be governed by the Department of Agriculture.

With regard to Land Settlement Baron Olivier said that he had read two or three scheme for its large extension. He did not wish to offer criticism, though in the scheme as put down on paper he saw a good many possible difficulties, which difficulties he had no doubt others had also seen or would discover. For instance a proposal that a village should be made into what would practically be a Government Farm where a number of persons would be employed, would probably not be very popular. It was also suggested that a settler should cultivate according to instructions issued to him. That would involve a great deal of difficulty because if a man did not cultivate as he was instructed, how was it proposed that he should be dealt with? He could only be turned out, and if he were, his position would be as bad as before.

A great deal of co-operation was necessary. Jamaica had been dealt a rather hard knock a short time ago in this business of co-operation, but still it was necessary that co-operative systems should be built up. The co-operative curing and storing of products should be developed, and he felt that the people of Jamaica would be amenable to falling in with such ideas.

In these developments of new holdings and improvements of old ones, he was sincerely convinced that they should get the principles originally laid down for the founding of the Jamaica Agricultural Society behind such schemes, and that the Society's instructors should be made use of as far as possible.

He expressed himself as pleased at the first five properties selected and purchased for the purposes under the new Land Settlement Policy, because years ago he had felt that those particular properties would be very suitable for those purposes. So far, he felt that the new Land Settlement Department had made a good start in their selection of properties.

He had been around the Island to a certain extent while here, but he had not noticed much of the alleged decay of the small farmers. Banana cultivations had depreciated but other crops had been or were being substituted.

Lord Olivier then recounted the efforts he had made along with Mr. Bertram, who was once a member of the Board of Management of the Jamaica Agricultural Society, in distributing hurricane loans to small farmers in St. Mary after the hurricane in 1903. The loans were made with very little security and it was pleasing to record that every penny had been repaid with interest. This contradicted the often repeated statement that the Jamaican negro was always a thief and would not honour his debts. The people had shown themselves upright and anxious to repay what had been lent to them to relieve their distress.

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Concluding, Lord Olivier said he was an unrepentant supporter of the established agricultural organisation policy of Jamaica as manifested in the Jamaica Agricultural Society.

He said he was convinced that Jamaica would find that Mr. Jones the new Director of Agriculture, understood very well the real value of the work of the Agricultural Society and its Instructors, and he would ask the members of the Legislative Council, especially those who were members of the Board of Management, Mr. Seymour Seymour, Mr. Little, Mr. Maxwell, and others to make this new executive officer feel that they were with him in any efforts which he might make to assist the Society. *He was quite sure that the Agricultural Society from a point of view of Agriculture was the most important institution in Jamaica.*

In replying to the vote of thanks conveyed to him, Lord Olivier paid tribute to some of the men who had done much for agriculture in Jamaica. He mentioned well known names such as George Douet and John Barclay, O.B.E., former Secretaries of the Society, Mr. Arnett a former Supervisor of Instructors, Messrs. Charles deMercado and J. H. Levy.

HALF-YEARLY MEETING

THE Half-Yearly General Meeting of the Society was held at St. George's School Room on the 12th January, 1939.

This was the first Half-Yearly Meeting since the arrival of His Excellency the Governor, who is the President of the Society.

His Excellency attended the Meeting, delivered an Address and remained for some time, while a few items on the Agenda were discussed.

Mr. G. A. Jones, C.M.G., the new Director of Agriculture also attended and remained throughout the whole of the Meeting.

There was a very representative attendance of members and delegates.

Mr. Seymour, the First Vice-President, was unable through loss of his voice, to preside though he was present throughout the day. The Rev. W. J. Thompson, Second Vice-President, in addition to delivering the Address of Welcome to His Excellency the Governor, presided during the morning session. After the luncheon adjournment Mr. U. Theo. McKay, Third Vice-President presided.

The Resolutions dealt with covered a wide range of subjects, but chiefly the questions of Loans to and Insurance for Smallholders, Prize Holdings Competitions, Agricultural Scholarships, Afforestation, Land Settlement, Marketing, Leaf Spot Disease of Bananas as well as improvement of Agricultural Industries.

The Meeting appointed a Committee to consider the whole question of Loans and to formulate a Scheme to be submitted to Government.

The question of loans for Farmers, has been considered by means of Resolutions for a number of years, but no practical proposals have ever been made to Government. Government has always insisted that Smallholders should make use of Loan Banks. On the other hand Branches have continually pointed out that Loan Banks, as at present instituted and operated, do not meet the requirements of existing cultivators for credit.

It is hoped that the Committee which has been appointed will evolve a system which will be acceptable to Government and so settle this long standing question.

The arguments used in support of loans pointed out most forcibly, that arrangements are now being made for new settlers on land to receive loans up to £5 to assist them with their cultivation, whereas older settlers who have been land holders for a number of years cannot progress because no provision has been made for granting them loans; or rather that the provisions which exist, arrange for loans to be repaid in too short a time and that the loans are issued at rates of interest which are far too high.

One marked improvement in the proceedings of this Half-Yearly Meeting was the new method by which the Roll Call was taken.

Delegates and Members registered at the door and received either a Red or a Blue Ticket (or both) which Tickets were used for Voting when a show of hands was taken.

The Agenda was carried through in good time and the discussions on many of the Resolutions reached a very high standard.

Before the Meeting closed Votes of Thanks to the Board of Management, the Field and Office Staff were proposed and passed.

Speakers on these Resolutions voiced the opinion that a Half-Year of useful work had been accomplished and that new ground in many directions had been broken in connection with the general work of the Society.

COFFEE INDUSTRY.

A meeting to discuss questions relating to the Coffee Industry was held at Mocho on 4th November.

Mr. Caseley, representative of Messrs. Lascelles deMercado, delegates from Branch Societies, Mr. H. G. Dunkley and Instructor Virtue were among those who attended.

Mr. Caseley gave a comprehensive account of the Industry.

He pointed out that if prices are to be raised and maintained, very much more attention would have to be given to quality and quantity in production.

He informed the meeting that a factory had been erected in the Frankfield area, and emphasized the fact that coffee could be bought at depots suitably situated over the area, and that a minimum price of 2/3 would be given at each depot for one kerosene box of "turn" and ripe coffee. This would be operated on a "Sliding scale" system.

Hopes were entertained for the erection of a factory in the Mocho district, if adequate water could be obtained.

The members left the meeting with feelings of renewed interest to restore their old coffee fields and establish new ones.

It was decided to have another meeting for the purpose of hearing the views of the Branches through their delegates, so that there would be a united decision as to the future of the Coffee Industry in the coffee districts of Clarendon.

FIELD STAFF AND SECRETARY, JAMAICA AGRICULTURAL SOCIETY.



Left to right (standing): J. Sanderson (Agricultural Foreman); Instructor C. D. V. Henderson, C. M. A. Robotham, G. R. Graham, C. S. Byles, Holon Heron (Bee Instructor), C. V. Atkinson, J. A. Graham, O. P. Martin (Supervisor of Agricultural Training), D. A. Jones, L. A. M. B. Coke, G. W. Wray, M. N. Thompson. (Sitting): C. C. Hastings, U. A. McLaren, D. Macdonald (Accountant), Arthur Thelwell (Secretary), P. St. L. Bacque (Supervisor), A. P. Hanson (Supervisor), H. W. Lynch (retired). (Front row): F. W. Kelly, A. L. Virtue, W. L. Shirley.

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CASTOR OIL

By H. C. MILLER, D. I. C. T. A.

AS agricultural Jamaica begins to tackle its problems seriously, embarking in earnest on planned Land Settlement Schemes, and adopting in practice the teachings of the often repeated phrases "Jamaica is an Agricultural Country" and "We must not put all our eggs in one basket," Agricultural Offices such as this become flooded with enquiries as to the possibilities of various minor crops. Among those crops which have received attention on the part of correspondents of this Society, the Castor Oil has been prominent. As there is at present very little literature available on the subject this article is penned in the hope that interested persons may have some basis for experimentation without having to move absolutely "in the dark."

The United States is easily the largest importer of Castor Beans and Oil, the bulk of her imports coming from British India. U.S. imports of Castor Beans alone for the year 1934-36 are as follows:—

Year.	Quantity thousands of lbs.	Total value thousands of \$.	Value per 1,000 lbs.
			\$
1934	92,840	1,738	18.72
1935	77,049	1,702	22.09
1936	164,077	3,621	22.07

Of the 164,077 thousand lbs. imported in 1936, the bulk came from British India. Other important producing countries are China, Japan, Brazil, Venezuela, and the Argentine.

Many of the producing countries manufacture their own oil but it is claimed that the best extraction is at present done in the U.S.A.

Owing to the high oil content of the seed, Castor Oil extraction by pressure requires rather specialised machinery and solvent extraction methods are now the most popular.

The Castor Bean of commerce consists of (1) a soft non-fibrous kernel containing approx. 62.9% of oil (2) a thin brittle seed coat, easily cracked or chipped in handling, containing approx. 10% oil.

In handling the beans extreme care must be taken to prevent breaking of this seed coat and the elimination of such broken beans from the samples to be exported, as broken beans rapidly deteriorate, the oil being converted to glycerine and free fatty acid which causes the production of a highly coloured acid oil during the process of manufacture. In commercial practice an extraction of about 36% oil is obtained.

Uses of Oil.—Owing to its very low freezing point (18°C) Castor Oil is used to a large extent for the lubrication of aeroplane engines. It also has the following advantages over mineral oils:—

- Greater lubricating power.
- Does not lose viscosity at high temperatures as quickly as mineral oils.
- More penetrating, and
- When mixed with gasoline, as happens during the lubrication of gas engines, it retains a higher viscosity than mineral oils.

Castor Oil is also used for the lubrication of automobile engines. It is usually mixed with mineral oils, which are much improved thereby.

Mixed with animal fats in varying proportion it is also used for making various grades of grease for light and heavy lubricating work.

The uses of castor oil in medicine is well known.

Other uses of Castor Oil include:—

- (1) In manufacture of artificial leather.
- (2) Leather lubrication.
- (3) Assists penetration of Tannin into leather.
- (4) Production of Turkey Red dye.
- (5) Manufacture of linoleum.
- (6) Various uses in rubber industry.
- (7) Manufacture of artificial skin preparations.
- (8) Manufacture of transparent soap.
- (9) Manufacture of shellac.
- (10) Manufacture of Typewriter ink.
- (11) Manufacture of Flypaper.

The number of industrial uses of castor oil is undoubtedly expanding.

During the Great War the Allies devoted much attention to increasing the production of Castor Oil, as a result, on the cessation of hostilities, the world markets were to a great extent overstocked with this commodity. With the world again devoting itself to a policy of re-armament and the imminent threat of a major war staring us in the face, it is not unlikely that the demand for Castor Oil will soon be on the increase and a valuable subsidiary crop provided for Jamaica.

In 1914 Jamaica exported 131 bushels of Castor Oil to the United States. Organised production of Castor Beans has apparently never been tried in Jamaica, however, the crops being reaped wholly from wild trees that have spring up, grown and fruited without the deliberate care of man. India on the other hand devotes large acreages to the culture of this crop; in 1936-37 in the Bombay Presidency alone 46,982 acres were devoted to the culture of this crop.

Cultivation.—Varieties:— There are many wild varieties of Castor Oil in Jamaica and there is scope for selection work to determine the variety with best commercial possibilities. Generally speaking, small seeded varieties are the more popular commercially; they are usually more early maturing, heavier yielders and contain a higher percentage of oil in the seed than the large seeded varieties.

Soils.—The Castor Oil does not like soils excessively acid or alkaline in reaction; best yields are secured on neutral soils, of medium texture, with good water retaining capacity and fairly rich in nutrients. Phosphate is apparently the nutrient on which the crop draws most, but, as will be seen from the following analysis by Semler of the ash of castor and corn, it is less soil exhausting than corn.

Semler's analysis of ash of Castor and Corn:—

	Castor.	Corn.
Phosphate	38.65	46.00
Potash ..	29.52	30.00
Lime ..	11.31	2.40
Magnesium ..	7.35	15.00

It has been found that on soils that are too rich in nitrogen the plant will produce exuberant vegetative growth rather than a heavy yield of seed.

In Jamaica Castor Oil has been found to thrive on a large variety of soils. It seems to do especially well on soils of limestone formation, rich alluvial soils or well drained clayey loam. The plant likes a dry atmosphere, and given a fair supply of water in the initial stages, withstands drought conditions fairly well. The time of planting thus



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depends to a large extent on the occurrence of the rainy seasons, and September would appear to be the most propitious month for planting.

System of Cultivation.—Castor Oil may either be grown as an annual (crop maturing 5-7 months) or as is done in the Argentine, the plants are cut back to a height of 5 or 6 inches after the first crop and a ratoon crop taken off. Sometimes this is repeated for a second ratoon crop. Annual planting is in most countries, however, considered more profitable.

Preparation of Land.—Good deep ploughing or forking before planting is necessary so as to ensure the soil being in a state ensuring the maximum water-retaining capacity and aeration at the time of sowing.

Sowing.—About 12 lbs. of seed will be required to plant each acre of the crop. To hasten germination it will be found advisable to soak the seeds for 24-48 hours in water or preferably, pen manure mixed with water. The seeds are then sown 4 to a hole in holes spaced 6 ft. x 6 ft. and about $\frac{3}{4}$ " deep. On sowing the seeds in the hole, it is advisable to space them in the form of a square 3"-4" apart one from the other, so that when the seedlings reach a height of 10"-12", the least vigorous may be pulled up and discarded without unduly damaging the root system of the one seedling left to the hole.

Subsequent cultivation with the object of restraining weed growth and retaining soil moisture will be advisable as often as the necessity becomes apparent. In some localities mulching will be found an efficient substitute for implemental tillage.

If the plants show a tendency to produce height rather than fruit, the trees should be topped at a height of about 3 ft. This topping also serves to encourage branching which is so necessary for heavy yields, since the fruit-bearing spikes are developed largely on the branches.

In five to six months from sowing the tree will be in bearing and harvesting will commence at about the seventh month.

Harvesting.—On ripening and drying the capsules bearing the seeds, open on the trees scattering the seed. It is necessary therefore to pick the mature seed shortly before this stage is reached. The proper time for harvest is indicated by the spikes turning brown, and the capsules just beginning to open, assuming a yellowish colour. The spikes are then cut with shears and branches put in a dry place and protected from rain and moisture. The seed is extracted by careful beating with rods so that the seed is extracted without damage to the thin brittle seed coat.

Yields.—In the Argentine yields higher than 700 lbs. per acre are seldom obtained but yields of 900 and 1,000 lbs. per acre have been obtained elsewhere.

It is asserted by many that conditions in Jamaica are especially suited for this crop and yields up to 1,000 lbs. per acre could be anticipated. Until the crop is fairly tried out it will be quite impossible to gauge the truth of this assertion, but I do not regard an estimated return of 600 lbs. per acre as being unduly pessimistic.

Returns per acre.

Yield per acre.	Estimated price per 1,000 lbs.	Gross returns per acre.
600 lbs.	£4	£2 8s. 0d.

It will be seen therefore that with the most efficient system of cultivation, unless yields higher than 1,000 lbs. per acre are obtained the Castor Oil can hardly be regarded as a suitable crop for the small farmer at the prices now obtaining.

THE CONVERSION OF HORTICULTURAL WASTES INTO HUMUS

HUMUS supplies the soil organisms (fungi and bacteria) with food and therefore maintains the life of the soil—the first condition of success in all branches of horticultural work. Humus also improves the physical condition of the soil (a) by increasing the internal surface (the pore-space) on which the root hairs work, (b) by improving the water-holding capacity and (c) by making the soil warmer.

A living soil confers a number of important benefits on the crops which grow in it. These crops are provided with a large portion of the food materials they need (such as combined nitrogen, phosphates, potash and other minerals); the quality of the produce improves; the resistance to disease increases.

Humus therefore provides larger crops, better and more saleable produce and helps the plants to resist the inroads of insects and fungi. When adequate supplies of humus are added to the soil not only will this result in better prices for the produce but the present heavy expenditure on artificials, insecticides and fungicides will be reduced. Further, a portion of the humus added every year to the soil goes to increase the permanent fertility of the land—is placed to capital account as it were. This is a very important point which is often lost sight of in comparing the effects of humus and artificials. It also makes the technical comparison between these two forms of manure by means of plot experiments exceedingly difficult.

1. THE PRODUCTION OF HUMUS FROM HORTICULTURAL WASTES.

- (a) *Mixed vegetable wastes*: All available vegetable matter such as weeds, leaves, residues from vegetable and flower crops, old straw, chaff, bracken, water-weeds, reeds and so forth are carefully collected and mixed in the process of collection. All hard, woody materials such as prunings, hedge trimmings and reeds are first crushed (by placing on the service roads) or cut up into short lengths by a chaff cutter. All fresh green materials must be withered in the first place as the object of the process is to make humus, not silage. Where sea-weed is available this valuable material should be fully utilised.
- (b) *Some convenient form of animal manure* produced by horses, cattle, sheep, pigs or poultry. Animal residues are essential if humus of the highest quality is aimed at.
- (c) *Some material for reducing excessive acidity* such as earth, sea-sand containing fragments of shells, wood ashes or chalk or a mixture of some of these substances.
- (d) *Water*.—In some places this will as a rule be supplied in sufficient quantities free of cost in the form of rain—a saturate solution of oxygen.
- (e) *Air*.—Air is needed in large quantities by the organisms—fungi and bacteria, which make humus. This is obtained by diffusion from the atmosphere.

The actual preparation of humus takes place in long heaps on the surface which are about four feet high to begin with and not more than two feet six inches when the material has settled. If the height of the heap after settlement exceeds 30 inches, insufficient air finds its way into the mass and humus manufacture is delayed. The heaps which may be any convenient length and not less than 10 feet broad are

built up on the sandwich principle starting with a layer of 3 to 4 inches of mixed vegetable wastes, followed by a thin layer (1 to 2 inches) of animal manure, followed by a good sprinkling of earth containing some wood ashes and chalk when these are available. The sandwich process is continued until the requisite height is reached, care being taken to finish off with a layer of animal manure and a good sprinkling of earth. In making the heap the mass should be kept open to allow of copious aeration. An intense fermentation soon sets in. The temperature rises: the vegetable matter turns white due to the development of fungus growth. After three weeks or so, the heaps are turned from one end, care being taken to turn undecayed material from the outside into the centre of the heap.

About 7 to ten days after the first turn the material begins to crumble and darken in colour. Bacteria from now onwards take the leading share in the manufacturing process. At the end of the second month from the time the heap was originally made it should be turned a second time. *Three months after the process began the material is ready for application to the land.*

If the rain is insufficient the heaps must be watered. This is best done by a hose, or watering can, provided with a suitable nozzle for breaking up the stream. The heap should be kept moist and mellow, *not wet*. If there is excessive rain, the fermentation slows down very considerably as a sodden heap cannot be aerated by natural means till drying takes place. Old corrugated sheets can be used to protect the heaps from excessive rain. If an old south wall is available this should be used.

I will answer in advance one objection which is certain to be raised, namely, the danger of disease when horticultural wastes are converted into humus. This point was fully investigated in the 25 years during which the Indore Process was worked out in India. No case of disease from the use of humus occurred. From none of the hundreds of estates in the tropics or any of the centres of Great Britain or other temperate climates where the process is being worked have any cases of disease been reported. The high temperature and high humidity in the fermenting heap destroyed all noxious insects and fungi.

2. THE PRODUCTION OF HUMUS FROM TURF, CLOVER LEYS AND GREEN MANURE.

The Indore Method can be applied to the conversion of turf and crops grown for green manure. In all these cases the raw material—grass turf, clover ley or green manure—is available at site free of cost of collection. Humus manufacture can then be carried on on the surface of the land instead of in heaps. Under these conditions all that is needed to start up the Indore Process is to add some form of animal manure or humus to the turf or green crop before ploughing. A very good method in the case of clover leys is that adopted by Mr. Secrett on his vegetable farm in Cornwall. The old ley is manured with farm-yard manure after the last clover crop and the land is ploughed while the soil is still warm. The fields are ploughed in strips so that the inverted turf and the undisturbed strip come together with a layer of farm-yard manure between. What amounts to the Indore Process is then set in motion above and below the layer of manure. The crude vegetable matter in the turf is rapidly converted into humus. When the ploughed field is cross-disked, the humus is incorporated in the soil in time for the succeeding vegetable crop.

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3. THE NEED OF ANIMALS IN HORTICULTURE.

It will be seen that when humus is made in heaps from miscellaneous vegetable wastes or on the surface of the land from old turf or green manure, some form of animal manure is needed. As farm-yard manure can rarely be purchased animals like horses, cattle or pigs must be kept. The waste products of the animal are essential in any effective and permanent system of agriculture. It is impossible to farm for long without stock.

ALBERT HOWARD.

14 Liskeard Gardens,
London, S.E.3.

26.5.37.

PREPARING PRODUCTS FOR MARKETS.

A great deal of improvement can be made in the way crops are prepared for sale. It must be admitted that at the present time, there is little or no preparation at all and commodities are offered to purchasers in the most unattractive condition.

The whole question of marketing is just now attracting the attention of all producers who seem to forget that they themselves can contribute considerably toward increased improved marketing.

Potatoes.—These should be sorted according to size and shape and be washed and generally cleaned before they are offered for sale.

Carrots and Turnips.—Only the best should be selected. The present practice is to root the lot up pell mell and offer them as they are to the public. Only broad-shouldered evenly grown Carrots should be offered; all the forked and split ones should be rejected and used at home. Carrots and Turnips should be thoroughly washed and tied into neat bundles.

Cabbages.—These are often offered for sale in a very unattractive manner. The heads should be kept perfectly clean when reaped, the Cabbage trimmed up and a few of the older leaves left on for protection. If the Cabbages have not received good care and the leaves are badly punctured, they detract from the sale. Most heads of Cabbage offered for sale are too large for individual families. Good eating Cabbages of medium size are more acceptable to householders.

Tomatoes.—Tomatoes should be picked before they are ripe. They should then be wiped with a damp cloth and ripened in the dark. If they are wrapped in old newspaper they will ripen with a beautiful colour. All punctured fruit should be discarded and only absolutely whole, clean fruit offered for sale.

Lettuce.—People refuse to buy and eat Lettuce because unfortunately, on some previous occasion they found "creeping things" between the leaves. Lettuce should be reaped early in the morning, and thoroughly swished in clean water and be offered fresh and sparkling with the appearance of dew upon them. Every head of over-ripe, limp Lettuce sold loses another purchaser.

String Beans.—String Beans should be scrupulously clean, tied into neat bundles and for preference wrapped in clean leaves.

Cauliflower.—This is rather a delicacy and not half enough of this vegetable is eaten for the simple reason that not enough is produced and offered to the Market. Most growers do not reap the Flower soon enough. The Flower should be cut before the individual spikes begin to grow out and the younger the Flowers are reaped the more delicious they will be. A few leaves should be left around the Flower for protection.

RIGHT METHODS IN DAIRY PRACTICE*

MANY dairy farmers—especially those who have only recently established dairy herds—are unaware of the essential points for the satisfactory and cleanly production of milk and cream. With the object of assisting these, and of forming a reminder for more experienced dairy farmers, this article outlines the absolutely necessary precautions to be taken and discusses the general principles which must be followed consistently, if the best results possible on each farm are to be obtained.

The bacteria responsible for the spoilage of milk and cream are to be found in large numbers on every farm, and, even on carefully managed and well conducted premises, if correct dairying methods are not used, they may enter from any or all of the following sources—

- (a) The udder, if the animal is not absolutely healthy, and if foremilk is not discharged.
- (b) The cow's coat and skin, if not wet-groomed before milking, or if the surroundings are neglected.
- (c) Dust in the cowshed or dairy.
- (d) The milker's hands, clothes, or person.
- (e) Milk buckets and equipment imperfectly cleaned, or not sterilised.
- (f) Impure water, if used in the cowshed or dairy.

The health of the cow is, of course, of first importance, and the farmer must assure himself that every animal in his herd from which milk is being produced is in fit condition and free from any signs of disease.

Suitable buildings, as provided for under the Dairy Regulations, are essential. These need not be elaborate or expensive, but they must be hygienic in construction—that is, capable of being kept clean.

Cement or concrete, being impervious, washable, and durable, makes the best flooring. For cowsheds, working it to a very smooth finish on which the animals may slip, should be avoided.

The inside of the milking shed, including walls and bails, should be lime-washed frequently in order to keep it sweet, and manure should not be allowed to accumulate in the sheds or in the adjacent yards. Cows should not have to wade through a mire when approaching the sheds.

Dust should be kept down as far as possible in the milking shed; therefore dusty feed should not be given during milking, and if there is a fodder room attached, it should be divided off by a proper wall in which any opening is fitted with a tightly-closing door—a sliding door is very suitable.

GROOMING THE COW.

Some preparation of the cow before commencing to milk is necessary, in wet weather to remove the mud and dung splashed on the udder and teats, and, under summer or drought conditions the dried dust, which is equally dangerous to milk quality.

The flanks and tail should be kept free from caked mud and dung by the occasional use of a currycomb, and the dust removed as often as necessary by grooming with a stiff brush dipped in clean water. It

*By M. J. Griffiths, B.Sc. (Dairying) Dairy Research Laboratory (Dairy Branch).

"Queensland Agricultural Journal, 1st Oct., 1938."

is a common practice on "model" farms to keep the hair on the flanks as well as the udder clipped short to avoid the collection of dust and dirt. Occasional clipping and regular grooming will make the daily routine of keeping the udder clean a very simple task. It is only when cows have been neglected that the washing of udder and flanks takes any great length of time.

The udder and teats should be washed before each milking. This is best done with a cloth (preferably of the woven type) kept for the purpose, and a bucket of clean water, using a separate cloth, with a second lot of clean water if necessary, for finishing off the udder. A small amount of potassium permanganate (Condy's Crystals), or some chlorine compound added to the water is an extra precaution observed by many farmers, which is advisable if there are any cases of sore teats, or where the water used is of doubtful purity. The teats are left damp, but not dripping, so that any remaining dust or loose hairs will adhere to the surface and not fall into the milk. Udder cloths must be washed out and boiled every day, otherwise they become a dangerous source of bacteria and the object of washing the udder will be defeated. Both cloths and bucket should not be used for any other purpose.

With practice, this routine preparation of the cow for milking can be very quickly and yet thoroughly carried out. It can be done by a boy and the time spent—one minute or less per cow—is negligible compared with the reduction in the number of bacteria gaining entrance to the milk and cream from this source.

DISCARDING THE FIRST-DRAWN MILK.

The first step towards clean and, therefore, profitable milking is the washing of the cow's udder and teats to remove dust and dung particles and loose hairs, which, if they fall into the milk, carry with them enormous numbers of bacteria. The second is the removal of the first-drawn or "foremilk," which is a less commonly recognised source of troublesome organisms. The small quantity of milk left after milking within the narrow canal leading from the udder to the outlet of each teat forms a good breeding ground, where nourishment, moisture, and a suitable temperature are available for growth.

On account of their minute size, bacteria can penetrate past the "sphincter" muscle, which closes the teat when milk is not being drawn, and, especially in the case of older cows, where this muscle has become slack, large numbers may enter and become established in the teat canal between milkings. Thus it is advisable, before milking is begun, to remove into a separate vessel—a small pail or billycan is suitable, but *not* a milking bucket—the first two or three streams from each teat. This will wash the teat canal free or almost free from contaminating organisms.

Experiments have shown that the foremilk, compared with the middle milk and strippings from the same cow, contains by far the largest proportion of the total bacteria, and, when it is considered that these may be from pasture, dung, soil, or contaminated, stagnant water, which contain particularly obnoxious types, the value of rejecting the first-drawn milk can be better realised. This has been found to be an important contributory factor in lengthening the life of milk, whether it is intended for human consumption, cheesemaking, or separation of cream for butter-making, and in avoiding bacterial taints and troubles such as ropiness and sweet curdling.

A far more important reason, however, why every farmer should

make a practice of removing the foremilk regularly at each milking is that it enables him to notice anything abnormal in the appearance of the milk. Early indications of mastitis usually show up in the form of tiny clots or strings in the first-drawn milk, which if observed may mean the detection of animals having one or more affected quarters, before the disease becomes serious. Special care can then be taken to milk the infected cows last, their milk can be isolated from the rest, and the spread of the disease to other cows in the herd prevented.

Under no circumstances must the foremilk be withdrawn on to the floor of the milking bail, for this is one of the surest ways of spreading any infection that may be present. Apart from this, decomposition will take place with accompanying bad smells and attraction of flies.

It is well known that the highest percentage of butterfat in milk is contained in the strippings and that the first-drawn milk is the poorest portion, so that discarding it will involve only a small loss in quantity, which is more than offset by the improvement in keeping quality.

In large herds, where the quantity of foremilk is considerable, it can be pasteurised or boiled and used for calf, pig, or poultry feeding, unless definitely known to be infected. If it contains milk from diseased quarters, it should be disposed of by adding some disinfectant and emptying well away from cowbails and water supply.

THE MILKER.

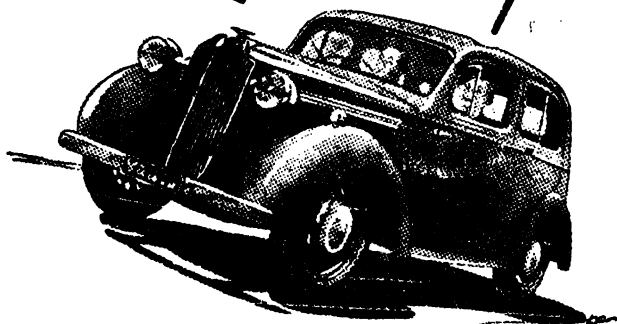
Much contamination of a serious nature may enter milk if the milker happens to be careless as to personal cleanliness, or if he be unhealthy. No person who is known to be suffering from an infectious or contagious disease is allowed by law to handle milk or cream, for many of the common disease germs are known to survive in milk, and some are able to multiply, if conditions are favourable, with the result that the infection may be transmitted to the consumer. Large scale milk-borne epidemics are not common, but they have been known to become widespread and far-reaching in their effects before the cause is discovered; whilst it is probable that many small outbreaks or single cases remain undiscovered and unreported. In the interests of hygiene and national health, the dairy farmer should realise his responsibility in this direction, and keep a strict check on the workers employed by him.

He should also see that proper clothing is available for milking. The clothes of the milker may constitute a source of danger to milk quality, if, for instance, the same clothes are worn as for pig-feeding, fodder mixing, grooming the cows, and removing manure. A pair of overalls, or a sugar-bag apron, worn for milking only, and washed at least once a week, is within the reach of all, whilst a washable cap is an added protection.

The milker should wash his hands thoroughly before commencing to milk and after completing each cow. This avoids transferring bacteria picked up from the cow's coat, leg ropes, stool, or surroundings to the freshly-washed udder of the next cow. Adequate provision for washing the hands in the cowshed is essential—a basin or sink should be placed in a convenient position, and, if towels are used, care should be taken to see that they are an asset to the hygiene of the milking shed.

On one farm recently visited, in the Brisbane area, the cowshed has a built-in sink and clean towels are provided daily for the use of milkers. This is an excellent arrangement.

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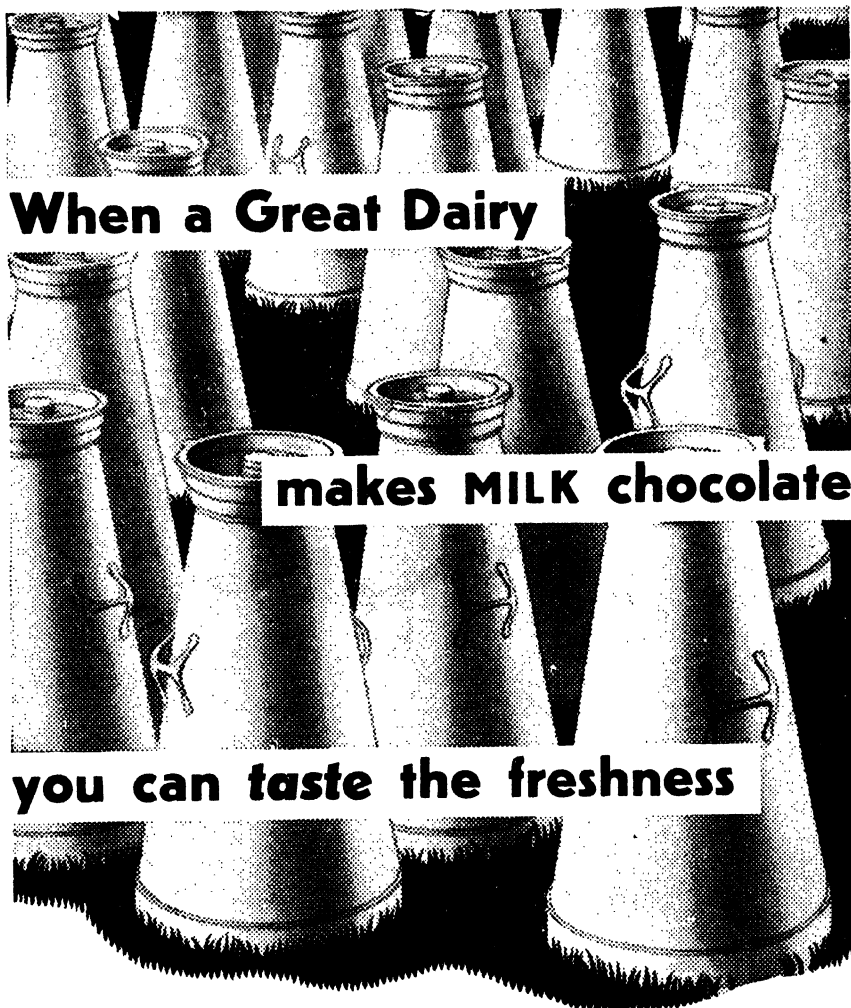
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WET OR DRY MILKING.

Many milk producers, careful in every other way to avoid contamination, still continue the unhygienic practice of wet-handed milking. Moistening the hands with milk direct from the teat, or, worse, by dipping into the milk pail, is a deplorable habit, which is responsible for much contamination as well as loss of quality of milk and cream. It is, of course, more serious if washing of the udder and of the milker's hands have been neglected, for then the dirt becomes intimately mixed with and well distributed throughout the milk. A glance at the accumulation between the fingers of a worker engaged in milking an unwashed cow wet-handed will be sufficient evidence of the truth of this statement.

Where washing of the udder and teats and discarding of the fore-milk have been carried out and the milker's hands have been washed, "wet" milking is less objectionable, but the fact remains that all the cleanest and most efficient up-to-date dairy farmers milk dry handed and this is a necessity for the production of milk for sale as "Tuberculin Tested" or "Accredited" in England, and for the majority of organised milkers' competitions. "Dry" milking means that the hands are washed immediately before starting to milk and after completing each cow, being left slightly moist after washing, and are kept as free from milk as possible.

Some farmers, mostly those who have not persevered with dry milking long enough to give it a fair trial, object to it as being slow and difficult, especially as regards stripping. It has, however, been found by hundreds of others to be equally rapid and simple, after a little practice, provided that the hands are left damp and the teats sufficiently moist after washing to make them pliable.

It is true that there are individual cows with badly-formed abnormal teats, or with one or more sore teats, which are difficult to milk dry-handed. For dealing with these, the clean milker uses a small quantity of ordinary vaseline applied to each teat after washing, which not only serves as a lubricant but also assists in the healing of the damaged skin, and helps to prevent particules being rubbed off into the milking pail. Teat sores should be treated with some antiseptic ointment between milkings. This also prevents their becoming more serious through being worried by flies. Great care should be taken by the milker to wash his hands thoroughly after each cow, for, obviously, this is a great factor in checking the spread of infectious sores.

Vaseline may be found of assistance to the man who has made a long practice of wet-handed milking when he first attempts the "dry" method, especially in stripping. It is preferable to use vaseline if, by thus easing manipulation, it prevents excessive downward jerking of the teats, which is often resorted to by an impatient milker, and which is not only quite unnecessary, but ruinous to the delicate udder tissues. After a time, however, it will be found that dry milking can be carried out easily and rapidly with no lubricant other than the moisture supplied by washed teats and hands.

This is being done on hundreds of modern dairy farms, where greater efficiency and increased keeping quality are aimed at, and, once established, this method is seen to be far superior to the old, which appears unhygienic, messy, and insanitary by comparison.

(To be continued.)

PREPARATION OF POULTRY

IN Jamaica there is no preparation, grading and packing of poultry. Fowls, turkeys, ducks are sold alive, feathers and all, and the duty of preparing them for the kitchen falls on the shoulders of the purchaser.

In these days when ice is cheap and cold storage facility handy in Kingston, there is no reason why the vendors of poultry should not begin to sell them "prepared."

By "preparation" is meant the whole programme of starving, killing, plucking, shaping, packing and selling poultry. In large Poultry Packing Centres, the style of packing is most important and affects the price to the amount of anything up to a sixpence per pound.

All poultry should be starved of every kind of food save water for 24 hours before they are killed.

The birds should be kept quiet and undisturbed during this time and a good supply of clean water provided. This starvation period enables the animals to empty their crops and intestines while the water helps to clean up the digestive tracts. Poultry treated in this fashion keep longer, and is of better quality.

A dose of vinegar given 10 hours or so before the killing has the effect of softening the flesh. The dose is about one dessert spoonful for fowls; for geese and turkeys, up to three teaspoonfuls up to 10 pounds weight; one tablespoonful up to 20 pounds, and over 20 pounds about three dessert spoonfuls.

Killing.—The best way to kill poultry is by dislocation of the end neck bones. It is clean, quick and simple.

Killing may be done by "sticking," if the birds are to be kept on ice. The loss of blood amounts to about 4% of the whole weight.

The dislocation method is as follows:—

For fowls and ducks hold the bird so that the wings and tail are in the left hand. Grasp the head with the right hand in such a way that the comb lies in the palm of the hand. A steady, firm pull is then given and the head is jerked back to dislocate the bones.

In any case the head should be well pulled back so that space is left to act as a reservoir for the blood. The bird should then be hung up neck down so that most of the blood will drain away from the body.

Sticking or bleeding is done by making a deep cut across the back of the roof of the mouth to sever the arteries. In this case a vessel is attached to the head to catch the draining blood.

Plucking.—There are many methods of plucking. Birds may be plucked dry or wet. On large farms they may be wax plucked or plucked by special machines. In dry plucking the bird is placed across the knee, the quill feathers of the wings and tails are pulled out and then the small feathers of the crop, abdomen and thighs, and finally the small feathers along the wings.

This is the order of plucking which should be followed in all cases.

Plucking should be done downwards and not cross-wise, the reason being that the feathers grow in layers. In wet plucking the bird is dipped into hot water and held there for half a minute, and then the plucking is proceeded with. The advantage of this method is that there is less danger of tearing the skin, but the disadvantage is that the flesh of the bird is not quite so bright and blooming.

Special machines are made which pull the feathers by suction, but the stubs have to be removed by hand.

Wax plucking is done by dipping the bird into a special wax solution which is allowed to set.

The layers of wax along with the feathers are then pulled off. This is an excellent method as it is tidy, all fowl lice are killed and very little damage is done to the carcass. In plucking fowls for market care must be taken to avoid tearing the flesh as this reduces the value.

In all methods the entire body is plucked with the exception of the head and neck where the feathers are left up to about 3 inches from the head, these being left to cover this portion of the body into which the blood has drained.

In the case of turkeys for the poultry markets of the world, the wing-tipped feathers are left on, while in some markets the feathers on the thigh are also left.

The carcass may now be singed and this is done by holding the bird over a clear, clean, flame. This removes the hairs from the body. Singed hairs should not be rubbed over the carcass or they will cause smudging.

For big market birds are then tied or shaped and this must be done immediately after plucking, while the carcass is still warm and pliable and still easy to handle.

Previous to tying and shaping, however, the large intestines should be emptied by pressing the carcass below the vent. As it is a serious fault and detracts from the appearance of the finished article, care should be taken to see that the legs are clean. They should be carefully wiped with a damp cloth.

If birds have been stuck the heads are then wrapped with grease-proof paper.

The condition and keeping qualities of prepared carcasses depend upon rapid cooling so that plucked birds should be put on the ice as soon as possible after the job has been done.

If the crops of birds have not been completely emptied, a slit of about half an inch should be made at the side and the crop emptied. The carcasses are then graded according to size, colour, age and general quality. They are then packed into boxes with clean packing material, after each bird has been completely wrapped in grease-proof paper to prevent tainting of the flesh.

It will be seen that we have much to learn in the matter of the preparation of birds for market.

The present popular method of transporting poultry alive over long distances is known to result in great cruelty to birds, unnecessary trouble to the consumer and moreover encourages fowl stealing.

The Poultry Industry is at the present time very much in the public eye and keepers should begin to adopt improved methods of marketing their poultry locally.

A. T.

Fruity Carrot Pudding.

3 medium sized carrots ($\frac{3}{4}$ lb.) grated; 2 cups bread crumbs, ground fine; 1 cup nut milk, or one egg; 1 dash nutmeg; 1 tablespoon raw sugar; 1 cup seedless raisins; (Unroasted nut butter may be diluted with warm water to the consistency of a nut milk.)

Thoroughly mix the ingredients and steam in a double boiler for half an hour. Instead of bread crumbs, two cups of flaked or cracked wheat, or an unrefined breakfast cereal requiring no or little cooking, or its equivalent in partially boiled rice may be used.

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POULTRY NOTES.

FOWL POX.

FOWL Pox is well known locally as Yaws and is thought to be a seasonal disease of fowls (chiefly chickens) occurring during mango and, or plum season and is often attributed to fowls feeding on these fruits.

In truth these fruits have nothing to do with the original outbreak of the disease. They, however, help the spread through the flock as both infected and un-infected birds feed together from the same fruit digging their beaks far into the fruit alternatively, thus not only passing the virus from diseased to healthy birds, but brushing their heads and making the spread of the disease easy.

Yaws or Fowl Pox is well known by the small wart-like growths on the comb, wattles or skin of the head and by the formation of cheesy-canker in the eye and mouth of birds. Although the cheese-like cankers are different in character from the warts they are caused by the same virus.

Outbreaks are common during the late part of the year, but they may occur at any time. These outbreaks vary; they may be severe or slight; may result in high mortality or very few losses. In any case, however, the loss is great in that birds are badly set-back and their laying capacity eventually affected. If pullets get yaws just before coming into laying the laying period will be delayed. There is also the tedious work and waste of time necessary for control.

A lot of research work in vaccines for prevention of this disease has been done, but the work has not been brought within the range of poultry keepers. There are two kinds of vaccines, chicken-virus vaccine and pigeon-virus vaccine. These vaccines produce mild infections and render the birds immune.

The use of vaccines with live virus is attended by certain risks: vaccination should therefore be done only by either qualified Veterinary Surgeons or persons experienced in handling and administering vaccines. Vaccines should only be used when birds are suffering from no other diseases and the after care of flocks is most important.

Recently it has been proved that Mosquitoes are carriers of the yaws virus, therefore chickens which have been reared under movable runs which are covered with mosquito screening, manage to keep free from the disease.

Like in most poultry diseases sanitary measures are important in controlling the disease. All pens and runs should be kept scrupulously clean, and relay pens which are well disinfected should be available for the isolation of healthy birds.

Healthy pens should be inspected daily and any birds which show signs of the disease immediately removed and isolated.

The diseased birds should be given treatment every three to four days. The treatment consists of removal of the scabs from the lesions on the skins and the cheesy canker from the mouth and eyes. This should be followed by the application of tincture of iodine to the spot by a swab or medicine dropper. Where the eyes are badly affected the birds should be destroyed. Care should be exercised in administering the iodine so as to prevent damage to the eyes and tender parts of the head. This takes a lot of time and much patience.

Other routine such as the provision of clean water, changed often, with the occasional additional of salts and a pinch of permanganate should also receive regular attention.

LIVESTOCK IN THE WEST INDIES.

By J. W. HOWE, Dip. Ag., B.S.A., M.Sc., Headmaster Government Farm School, Superintendent Government Stock Farm.

(Continued.)

Milking.—The question of milking is an important one, as upon it the cleanliness of the milk largely depends.

Milking machines today are so well developed that the milking can be done very efficiently by machinery. There are, however, two points in the Tropics which must be considered before this method of milking can be followed. The first is the question of suitable labour for operating the machine. In the West Indies as elsewhere, the success of milking by machinery depends on the efficiency with which the machine is operated. If the operator is onto his job and takes the machine off as soon as the various quarters are milked dry, then milking can be done efficiently by machinery. If on the other hand the operator leaves the machine on until some time after the udder is dry, then udder troubles in the herd are bound to result. The second consideration is the question of cleanliness. A machine in order to be sanitary requires considerable attention, and in order to keep it clean, the average labourer requires constant supervision.

With a high type of labour the machine aids in reducing the cost of milking, but care as to efficient operation and cleanliness must always be borne in mind.

Milking by hand is probably as cheap and efficient in the long run, especially in the case of small herds. Dry hand milking should be used and wet hand milking discouraged, as it is insanitary. The milker should wash his hands before milking, and should wash off the udder of the cow. These details require little time and aid greatly in the production of clean milk.

Milking should be done regularly. In some cases the cow is milked in the morning and the calf turned onto the dam in the afternoon. This method is successful where only a limited quantity of milk can be sold and the demand comes in the morning. Under normal circumstances milking is done twice daily, and the animals fed at the same time that they are milked.

Sanitary Production of Milk.—Milk is an excellent medium for the production and propagation of bacteria, and while carelessness in the handling of milk may cause an epidemic, pure milk can be produced by following the every day common sense rules of cleanliness.

Care should be taken to see that the milkers are healthy. No person ought to be employed who is not healthy in every way. Regular medical examination is sometimes necessary, and is becoming a requirement by the health authorities, for dairymen who are supplying milk to the cities. Diseases such as typhoid fever, diphtheria and tuberculosis are transmitted by milk.

The health of the cow is as important as that of the milker, and any animals which are not healthy, are a menace to the health of the public. Tuberculosis and septic sore throat are two diseases which can be transmitted to humans through infected milk. Most countries require that all the animals in the dairy herd be tested for tuberculosis at least once a year, and any animal which gives a positive reaction is slaughtered. With tuberculosis as rampant as it is in the West Indies, careful attention to this question is necessary. Tuberculosis can be contracted by humans from cattle, such disease generally taking the form of tuberculosis of the bones.

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The utensils used in handling milk should always be clean, and after being thoroughly washed should be sterilised with either steam or boiling water. The use of plenty of boiling water in the dairy is one of the best methods of insuring pure, clean milk.

Sale of milk.—While there is normally a good demand for milk in the West Indies, the consumption could be increased materially, as the amount of condensed milk used is enormous. In Jamaica alone during the year 1937, the amount of tinned milk imported into the island amounted to 8,984,270 pounds, valued at £119,258 or \$596,290. While the tinned milk is in a handy form for use by the poorer people, there is no reason why fresh milk cannot take its place. Fresh milk besides improving the diet of the labouring class, would do a great deal to improve agriculture generally.

Milk in the Tropics is generally sold from door to door, and may be delivered in bulk, where the vendor dips his measure into the can and fills your container, or it may be delivered in bottles. The latter method is by far the best and the cleanest, although loss from breakage may be high. The method of delivery is not important if the product is clean and sweet when received.

Butter-making.—While some butter is made in the West Indies, the major part of the butter consumed is imported. Owing to the high temperature, butter-making under Tropical conditions is not as easy as it is in cooler climates. With the development of the dairy industry in the West Indies, there is little doubt that in the future more butter will be made, and less imported.

Age to breed.—The dairy heifers in the Tropics do not develop as strong a constitution as those in colder climates, and care must be taken to see that the animals have sufficient size and development before they are bred. Animals of the smaller breeds such as the Jersey, can be bred at the age of from 24 to 30 months, while the larger breeds such as the Holstein-Friesian should not be bred under 30 months of age.

Nothing is gained by breeding the heifers too early. Heifers bred at too early an age fail to develop, as the feed which they would normally use for development goes to nourish the foetus, with the result that the development of the dam is arrested. Then too, very young heifers may give birth to small weak calves. An extra six months on the age of a heifer before she is bred will more than pay for the time the dairyman has to wait before she freshens.

The dairy bull can be used for light services at the age of 24 months, and full services can be given when the animal is four years old.

Length of Lactation.—The dairy cow in the Tropics is not as heavy a milker, nor does she milk over as long a period as the dairy cow in the colder climates. The average lactation period in the Tropics is less than 300 days. Care should be taken to see that the dairy animal is dried off at least two months before she calves, in order that she will be in good condition to start the lactation period. Attention to this point is not always given, with the result that the animal is milking practically up to the time of calving, which gives neither the cow nor the calf a chance to do their best.

Value of a good Sire.—The value of using a good sire has already been mentioned in the chapter on Breeding, but this question cannot be over emphasized, as a good sire in the dairy herd means the difference between profit and loss. The sire should be selected according to the production of his dam, grand-dam, and especially the daughters he

sires, and should above all be a good specimen of the breed which he represents. While pedigree is important, it should not over-shadow production and type, and when selecting a sire to head the dairy herd, all these points should be given consideration. Money spent on the purchase of a good sire will be returned an hundredfold, while the use of an inferior sire because he is cheap, will do more than anything else to reduce the production of the dairy herd.

Care of the Dairy Bull.—In order to keep the dairy bull in good condition, proper attention must be given to his care. He should be kept in a clean, dry stall, and should have plenty of paddock room available in which to exercise. The stall should be substantially built so that there is no danger of the bull breaking out, and it should be dry. Shade should be provided in the paddock, and the fences surrounding the paddock should be strong. If the paddock adjoins another in which a bull is kept there should be a double fence, at least six feet apart between the two paddocks.

Exercise is very necessary for the bull, and if the animal does not take exercise voluntarily, he should be walked a mile or so each day. Lack of exercise in the Tropics is the first step to sterility in bulls.

The bull should be handled carefully from the time of birth, and should never be allowed to get out of control, no matter how gentle he may appear to be. It is always the gentle bull that causes the accidents.

Sterility in Dairy Cattle.—This problem in dairy cattle is an important one in the Tropics, and one against which the dairyman must always guard. Probably the most common cause of sterility in dairy cattle, is that they tend to lay on fat at an early age, and if care is not taken to keep them in average condition until they are bred, they may become too fat and difficult to get in calf. This is found most commonly in the dual-purpose breeds, which tend to lay on fat more rapidly than the true dairy type, yet the animals of the dairy type also give considerable trouble in this regard. There is little that can be done to rectify the trouble. Exercise, careful feeding, and the use of a proven bull, will alleviate the condition as much as anything else.

Abortion.—More trouble is caused from abortion in the dairy herds in the Tropics than from any other factor. Trouble from this malady is also common in the colder climates, and is by no means confined to the Tropics.

Abortion may be of two different types, that caused by the animal slipping or falling, which is termed sporadic abortion, and that caused by the action of organisms on the foetus, which is termed contagious abortion. The latter type is by far the most prevalent in dairy herds today, and is one against which the dairyman must wage a constant fight.

Contagious abortion is caused by a specific organism, (*Bacillus abortus*—Bang) and is usually spread from one animal to another by contact and is highly contagious. It may also be spread by means of feed. The disease germs are usually found in the womb and after-birth of the animal which has aborted, and are also found in the stomach and the digestive tract of the aborted foetus. Abortion of the contagious type usually takes place from after five to seven months of pregnancy, but may take place at any time.

A cow may abort several times and then give birth to normal calves. Even though she calves normally, she may be a carrier of the disease and capable of infecting the other animals of the herd. Contagious

abortion may cause sterility in both the bull and cow, and as the bull becomes infected he is capable of transmitting such infection to the cows which he serves.

A method of testing animals for abortion is now in common use. It is termed the agglutination test and consists of drawing an amount of blood from the animal, obtaining the serum, and treating it with a re-agent. If the animal tested is positive and carries the abortion germ, the serum after the re-agent has been added will show a definite agglutination. This test requires laboratory equipment, but can be performed by any competent veterinarian. The animals after they are tested should be segregated, those which give a positive re-action to the test being placed by themselves, and under no consideration should they be allowed to run with the animals which do not carry the disease. Pregnant cows should never be allowed to calve with other pregnant animals, and should always be kept by themselves if there is any indication of abortion in the herd. It is only by segregation, and the use of proper disinfectants, that this disease can in time be eliminated from the herd.

(To be continued.)

MARKETING NOTES.

THERE has been a decline in the prices of nearly all commodities. The only items which register increases are Orange Oil, which appeared in our last publication at 3/3d. and today the price quoted is 4/- and Sarsaparilla last quoted at 40/- and now quoted at 42/-.

Present quotations are as follows:—

<i>Annatto</i>	... Well cured, prime, red seed	... 17/- per 100 lb.
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	... Fine Ordinary	... 26/- " "
	... Manchester—B	... 26/- " "
	... Manchester—A	... 28/- " "
<i>Cocoa</i>	... Ordinary	... 16/- " "
	... Estates Fertd.	... 16/- " "
<i>Goat Skins</i>	... Well cured and free from holes	... 1/1d. per lb.
<i>Honey</i>	... Water White	... 2/- per gall.
	... Pale Amber	... 1/6d. " "
	... Light Amber	... 1/3d. " "
	... Dark Amber	... 1/- " "
<i>Kolanuts</i>	... Well cured, sound quality	12/- per 100 lb.
<i>Lime Juice</i>	... Good, fresh, green, top-pulp	... 1/- per gall.
<i>Orange Oil</i>	... New Crop—Sound Quality	...
	... —Sweet and Bitter	... 4/- per lb.
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BRANCH NOTES.

All Reports received are acknowledged in this section of the Journal. Notes intended for publication should be written *on one side of the paper only*. [Ed.]

CLARENDON: Crooked River, Crooked River P.O.—Meeting held 14.10.38. Present: Mr. A. T. Anderson, Vice-President; the Secretary, 10 other members and Instructor Thompson. It was decided to write to the Parochial Board re Water Supply. Authorized Persons reported. The Instructor spoke on coffee reaping, curing and marketing. The meeting terminated with the National Anthem.

O. A. WILLIAMS,
Asst. Secretary.

John Austin, Chapelton P.O.—Meeting held 24.10.38. Present: the President, the 1st Vice-President, the Secretary, the Asst. Secretary, the Treasurer and 11 other members. Correspondence re Half-yearly meeting at Chapelton was dealt with, and two resolutions dealing with the road and water supply were forwarded. Five delegates were appointed. The Secretary read and explained the published account of the Government's New Land Settlement Scheme. The meeting decided that the Branch start vegetable growing and purchase a ram of suitable milch strain. The National Anthem terminated the meeting.

H. S. HALSTEAD,
Secretary.

John's Hall, Frankfield P.O.—Meeting held 21st October. Present: 1st V.-P., Teacher H. D. Worgs, Instructor Graham, the Secretary and members. Correspondence was read. The Instructor spoke on the use of Fertilisers. It was decided to ask the Parochial Board to improve the condition of the No. 120 Road and the Water Supply. The meeting terminated with the singing of the National Anthem.

(Miss) M. A. BURTON,
Secretary.

Mt. Airev, Richmond Park P.O.—Meeting held 8.11.55. Present: Mr. C. S. A. Edwards, President; Instructor Virtue, 7 other members and the Secretary. Instructor Virtue encouraged members to have an outing and told of the benefits to be derived therefrom. He expressed pleasure at the work being done on the Experimental Plot. The Instructor instructed members in the treatment for Leaf Spot Disease. The Secretary submitted rules governing the Cabbage Competition to the Instructor, who advised method of planting. Correspondence included letters from the C.B.A. It was decided to send a delegate to the Half-yearly meeting. The meeting terminated with the singing of the National Anthem.

(Miss) M. E. A. DAWKINS,
Secretary.

Sunbury, Spaldings P.O.—Meeting held 8.11.38. Present: Mr. J. Donaldson, President; Mr. L. Gauze, Treasurer; Mr. H. Peart, 1st V.-President; Mr. G. Reid, 2nd V.-President; Mrs. I. Gauze, Assistant Secretary; N. Knight, Secretary; and 18 other members. Correspondence was read. The need for a school and a road was pointed out. A delegate to the C.B.A. meeting was elected. Seed potatoes were planted for demonstration. The need for a demonstration plot was stressed. The meeting was closed by the singing of the National Anthem.

NARRELD KNIGHT,
Secretary.

HANOVER: Cacoen, Riverside P.O.—Meeting held 17th November. Present: Instructor Hastings, Messrs. C. A. Malcolm, President; A. G. Durrant, 1st Vice-President; A. R. Cadogan, 2nd Vice-President; E. L. Johnson, Secretary; C. E. Wood, M.P.B. Miss M. C. Dinham, Assistant and Reporting Secretary; seven other members and a few visitors. Correspondence was read and dealt with. Five delegates were appointed to attend the Half-yearly meeting to be held at Green Island. It was agreed that a resolution be sent to that meeting re Hookworm Campaign and Sanitation of the parish. Mr. Hastings spoke on Leaf Spot and its treatment, and of the forthcoming Agricultural Show to be held at Lucae on 27th December. The singing of "The King" brought the meeting to a close.

(Miss) M. C. DINHAM,
Asst. Secretary.

MANCHESTER: Auchtembeddie, Balacava P.O. Meeting held 11th November—Mr. T. N. Morris presided. Messrs. T. N. Morris, I. N. Taylor and E. Robertson were appointed delegates to the Half-yearly meeting of the Associated Branches to be held at Albert Town. There was a discussion on the varieties of cane best suited for the area. POJ, 2878, 2725, 2727 and M28 were recommended. The Instructor, Mr. F. W. Kelly, gave valuable hints concerning the cultivation of canes. Authorised Persons E. White and M. Walker reported. Mr. J. Clarke sent his report. The Instructor spoke on the necessity for special attention to minor industries. Mr. I. N. Taylor, Vice-President, spoke on loyalty to the Society. The President extended thanks on behalf of the members to the Instructor and exhorted members to encourage others to swell the ranks of the Branch. Minor matters were dealt with, and the meeting ended with the singing of "the King."

J. N. FRASER,
Secretary.

PORTLAND: Bybrook, Skibo P.O.—Meeting held 17.11.38. Present: 12 members and many visitors. Mr. S. E. Patterson presided. The following matters were discussed: (1) Land Settlement Scheme, (2) Corn Meal Industry in Jamaica, (3) Condensed Milk Factory at Bog Walk, (4) The proposed plan of holding a Show at Port Antonio in 1939, (5) Drafting of Resolutions to be sent to the Half-yearly meeting to be held at Port Antonio, and appointment of delegates. The meeting adjourned after the singing of the National Anthem.

(Miss) I. M. FACEY,
Acting Secretary.

Mahoe, Bangor Ridge P.O.—Meeting held 17.11.38. A report of the Branch's activities for 1936-1938 was given. The Secretary was congratulated. Correspondence was dealt with. A delegate was elected to the Half-yearly meeting of the Portland Branches Associated. Authorized Persons gave their reports. Roll Call showed 13 members. The meeting was brought to its close by the singing of the National Anthem.

J. O. GRANT,
Secretary.

Maidstone-Bourbon, St. Margaret's Bay P.O.—Meeting held 9th November. Mr. N. V. Thompson, M.P.B., presided. It was decided (1) that a grindstone be purchased for the Branch; (2) that in connection with the proposed vegetable competition one person should do the sowing. The President undertook to do this. Rules governing the competition were submitted and adopted. It was agreed to ask the Parent Society for a donation towards the prizes. The delegate to the Half-yearly General Meeting of the Parent Society presented his report. A reply was read from the Director of Agriculture stating that a White Leghorn rooster could be obtained for 10/-. The Secretary was instructed to purchase the rooster. A letter was read from the Rock Hall Branch asking for the co-operation of Authorized Persons. The following were elected as delegates to the meeting of the Portland Branches Associated: Messrs. N. V. Thompson, I. E. Somers, Jasper A. Thompson, Leonard Williams, and Clifford Henderson. 11 members were present. The meeting terminated with the singing of the National Anthem.

I. A. SOMERS,
Secretary.

ST. ANN: White Hall, Blackstonedge P.O.—Meeting held 14.11.38. Present: Messrs. R. Forbes, President; J. Taylor, 1st Vice-President; J. Higgins, 2nd Vice-President; W. Forbes, Treasurer; S. Brown, Secretary; 11 other members and several visitors. The question of a Prize Holding Competition came up for discussion. The matter was referred to the Parent Society. Mr. I. Vincent gave an encouraging report re good results obtained after using fertilisers. The questions of a Sanitary Water Supply and a Demonstration Plot were discussed. The National Anthem closed an interesting meeting.

S. BROWN,
Secretary.

Hiattsfeld, Ocho Rios P.O.—Meeting held 12.10.38. Present: Mr. J. S. Forrest, President; Mr. B. Moncrieffe, 1st V.-P.; Mr. Geo. Brown, 2nd V.-P.; Mr. W. R. S. Green, Secretary; Instructor Atkinson and 12 other members. The condition of the road was discussed. Mr. Forrest reported that the rain was doing well. The Instructor gave a lecture on the growing of vegetables. The Authorized Person reported "all correct." A very profitable meeting was closed with the singing of the National Anthem.

I. S. BRYAN,
Reporting Secretary.

Pedro, Benson P.O.—Meeting held 26.9.38. Present: Mr. C. L. Beckford, President; A. L. Francis, Secretary; 14 other members, and Instructor Atkinson. The planting

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of Irish Potatoes was discussed. Members were reminded of the visit of the M.L.C. Authorized Persons gave good reports of their districts. The Instructor spoke on vegetables. He reminded the members of the meeting of the Branches Associated to be held at Bamboo. The meeting adjourned with the singing of the National Anthem.

A. L. FRANCIS,
Secretary.

ST. CATHERINE : Morris Hall, Harker's Hall P.O.—Meeting held 4th November. Present: Messrs. J. L. Edwards, President; R. Beckford, 1st V.-P.; F. S. Rhooms, 2nd V.-P.; U. Price, Treasurer; T. E. Lawrence, Secretary; C. S. Byles, Instructor; and 42 members. Six new members were enrolled. The Secretary thanked the members for the hearty response given to circulars sent out and wished for continuance of their co-operation. The Agricultural Instructor, addressing the meeting, congratulated the Branch on the representative gathering and the progress made since its formation. Two items of vital importance were dealt with by the Instructor, viz.: Rearing of Poultry and Pigs. The following members were drafted for the Working Committee: Messrs. Chas. Rhooms, A. D. Mattocks, Robert Thompson, H. Smellie, Septi Lungs, Hezekiah Welch, Miriam Townsend, C. Mason, M. Edwards. To attend the half-yearly meeting of Associated Branches at Bog Walk on the 18th inst. the following delegates were appointed: Messrs. J. L. Edwards, T. E. Lawrence, F. S. Rhooms, R. Thompson and Herman Smellie. The meeting closed with the singing of "the King".

T. E. LAWRENCE,
Secretary.

ST. ELIZABETH: Nightingale Grove, Newmarket P.O.—Meeting held 4.11.38. Present: Mr. N. W. Dixon, President; Mr. A. A. Walker, 1st Vice-President; Messrs. Cowan and Vassel, 2nd and 3rd Vice-Presidents respectively; Miss E. J. Dobson, Secretary; Instructor Wray, 25 members and several visitors. A letter from the Assistant Secretary of the Parent Society re the growing of vegetables was read. Instructor Wray gave useful information and suggested that as marketing was the all-important question the Branch should invite Mr. P. M. Whittaker of Holly Hill, Darliston, to address the Branch, he having a full knowledge of the demands of the local market. This was agreed to. With reference to growing vegetables for the foreign market, a resolution was passed asking that Government consider the establishment of a buying centre for that area. The Instructor advised members of a market for Irish potatoes. The following delegates were appointed to the Half-yearly meeting of the St. Elizabeth Branches Associated: Messrs. N. W. Dixon, A. A. Walker, A. E. Cameron, N. C. Lewis, and Miss E. J. Dobson. Land Settlement was mentioned. It was decided that the Branch should join in a delegation from the Middle Quarters, Giddy Hall and other branches of the J.A.S. to interview the Deputy Land Commissioner at Newmarket on 26th November. The delegates appointed were Messrs. Dixon and Walker. The question of a site for the Newmarket tank was discussed. Two new members were enrolled. The meeting was brought to a close.

(Miss) E. J. DOBSON,
Secretary.

Kilmarnock, New Market P.O.—Meeting held 3.11.38. Present: Messrs. J. Warren, 1st Vice-President; J. E. Monteith, Secretary; E. Scott, Asst. Secretary; and 24 members. A letter from Mr. R. G. Sinclair, Chairman of the Par. Board, and President of the Associated Branches, was read promising to attend the next meeting. Authorized Persons reported "all correct." Delegates for the Half-yearly meeting to be held at New Market were elected. Resolutions were forwarded. After the singing of the National Anthem the meeting adjourned.

J. E. MONTEITH,
Secretary.

ST. MARY: Long Road, Enfield P.O.—Meeting held 21.11.38. The chair was taken by Mr. W. E. Brown, who spoke of the usefulness of the J.A.S. and made an appeal for increased membership. A circular from the St. Mary Branches Associated was read and discussed. Messrs. W. E. Brown, R. M. Hird and S. Bailey were appointed delegates. Resolutions re Telephone connection and Land Settlement Scheme were forwarded. 19 members and 11 visitors were present. The meeting ended with the singing of the National Anthem.

R. M. HIRD,
Secretary.

Baxter's Mtn., Annotto Bay P.O.—Meeting held on 13.11.38. Correspondence read and discussed. For preserving seeds from weevils members were advised to use Para-

dichlorobenzene. Authorized Persons J. Phillips and A. Strachan reported "all correct." Instructor Jones demonstrated at the holding of Mr. C. A. Strachan, also in the School Garden. The Land Settlement Scheme was explained. The Instructor addressed the meeting. A vote of thanks was conveyed to him. A vote of appreciation for his services was accorded the Secretary. A Committee was formed to make arrangements for the meetings of the Associated Branches. Present: 8 members, the Instructor and the Secretary. The meeting adjourned.

R. J. LAWSON RICKETTS,
Secretary

Epsom, Annotto Bay P.O.—Meeting held 2.11.38. Present: Instructor Jones, Mr. Wilfred Grossett, 1st Vice-President; 7 other members and the Secretary, Mr. F. Edwards. The Instructor advised members to get a buck through the Parent Society. Two A.Ps. reported "all correct." The Instructor addressed the meeting, which came to a close with the singing of the National Anthem.

FRED. A. EDWARDS,
Secretary.

Lucky Hill-Jeffrey Town, Lucky Hill P.O.—Meeting held 15.11.38. Present: Mr. W. A. Smith, 2nd V.-P.; 22 members, many visitors and the Secretary. Communications from the President and Asst. Secretary of the Associated Branches and from the General Secretary were read. The 1st V. P. and Secretary were elected to attend the Half-yearly meeting at Highgate, and 5 other members volunteered to attend. Several new members were elected. The Chairman reported that Registration of Births and Deaths for the district was being attended to, also the Water Supply. The meeting adjourned and there was a Social.

F. WRIGHT GIBBAGHAN,
Secretary.

ST. THOMAS: Seaforth, Seaforth P.O.—Meeting held 19th October. Present: Mr. U. A. McLaren, Instructor; Mr. T. A. Edman, President; 6 members and the Secretary. The matter of the encroachment of the Johnson River on the township of Seaforth was again brought up and the Secretary was instructed to make representations to the Parochial Board. A committee was named to deal with the purchase of a ram through the Parent Society, for the use of the Branch. The Instructor gave a very interesting and instructive address about the Leaf Spot Disease of Banana. He spoke about the possibility of the establishment of a cornmeal factory in the Island. The meeting was brought to a close by the singing of the National Anthem.

A. O. GRANT,
Secretary.

TRELAWNY: Waldensia, Sherwood Content P.O.—Meeting held 7th November. Present: Mr. D. A. Beckford, President; Instructor Robotham, Teacher C. C. Lee, Secretary; Rev. E. A. Jessop, M.A., Treasurer; Mr. C. A. Cotterell, Reporting Secretary; 24 other members and many visitors. Correspondence: Letter from the Secretary of the Trelawny Branches Associated was read. Three delegates were appointed to represent the Branch at the Half-yearly meeting to be held at Albert Town on 3rd December. Authorized Persons' reports: Seven Authorized Persons reported. The Instructor addressed the meeting on the cultivation of Irish Potatoes, and gave valuable hints on the growing of white yams. Mr. Arnett, Chairman of the Parochial Board for Trelawny, gave a lengthy address on corn and on the accomplishments of the Board in regard to certain petitions that had been made by this Branch. The meeting was brought to its close by the singing of the National Anthem.

C. A. COTTERELL,
Reporting Secretary.

WESTMORELAND: Caledonia, Darliston P.O.—Meeting held 25.10.38. Present: Mr. N. A. Grey, President; Instructor Shirley, Miss I. Vic. McPherson, Secretary; 11 members and several visitors. The Instructor spoke on the following: (1) Land Settlement; (2) Limes; (3) Agricultural Department; (4) Agricultural Society; (5) Half-yearly meeting of the Westmoreland Branches Associated. Five delegates were elected. The Land Settlement Scheme provoked much discussion. The President advised members to plant seed potatoes. The Secretary was asked to write for a Prize List for the Show to be held at Lucea on 27th December. A. P. reported "all correct." The meeting terminated with the singing of the National Anthem.

(Miss) I. VIC. MCPHERSON,
Secretary.

OTHER REPORTS RECEIVED.

Branch and Secretary.	Date of Meeting	Attendance.	Business.
<i>Clarendon</i> — Mt. Airey (Miss M. Dawkins)	14.10.38	15	Demonstration Plot. Outing. Cabbage Competition. Water Supply. Land Settlement Scheme. Correspondence.
Stewarton (Miss I. I. O'Reilly)	1.11.38	49	Correspondence. C.B.A. Half-yearly meeting. Address by Instructor Virtue. Coffee.
<i>Manchester</i> — Mizpah (U. C. Wolfe)	14.11.38	1	Duster. Local show. Rain. Treasurer's report. Demonstration Plot. Correspondence.
Old England (C. P. Watson)	25.10.38	10	Road. Minor matters.
<i>Portland</i> — Craigmill (Rev. T. Lawrence)	1.11.38	12	Correspondence. Address by Instructor Wilmot.
Maidstone-Bourbon (I. E. Somers)	12.10.38	16	Leghorn rooster. Vegetables. Address by Instructor G. R. Graham.
<i>St. Ann</i> — Pedro (A. L. Francis)	..	Over 21	Road. Half-yearly meeting. Tank. Government Marketing Depot.
Sturge Town (L. A. S. Dawes)	23.10.38	13	St. Ann Branches Assoc. Half-yearly meeting. Tank. Report of Authorized persons.
<i>St. Andrew</i> — Paisley (N. Hawthorne)	11.10.38	19	Land Settlement. Address by Instructor Jones. Routine matters.
Rock Hall (Mrs. B. Heslop)	31.10.38	31	Land Settlement Scheme. Address by Instructor Henderson. Meeting of St. Andrew Branches Assoc.
<i>St. Catherine</i> — Morris Hall (T. E. Lawrence)	7.10.38	Over 40	Land Settlement Scheme. Bridge. Election of officers.
Hampshire (E. A. L. Rowe)	25.10.38	Over 10	Correspondence. Road. Police station. Tour. Address by Instructor Byles on "Poultry rearing." Water supply.
Phillipsburgh (M. I. Johnson)	23.9.38	..	Outing. Social. Planting of rice. Report of Authorized Person.
<i>St. Mary</i> — Baxter's Mtn. (R. J. Lawson Ricketts)	8.10.38	..	Correspondence. Reports of Authorized Persons.
Free Hill (N. B. Falconer)	27.10.38	8	Land Settlement. Vegetable seeds. Report of A. P.

OTHER REPORTS RECEIVED, *Contd.*

Branch and Secretary.	Date of Meeting.	Attendance.	Business.
Mt. Regale (T. H. Hannam)	4.11.38	Over 25	Address by Instructor Jones. Savings Bank. Reports of Authorized Persons. Election of delegates to meeting of St. Mary Branches Assoc. Road. Minor matters.
St. Thomas— Thornton (N. A. Patterson)	8.11.38	28	Land Settlement. Correspondence. Address by Instructor McLaren. Road. Delegates elected to meeting of St. Thomas Br. Assoc.
Pear Tree River (V. R. McLean)	1.8.38	Over 7	Land Settlement. School. Road. Correspondence. Water Supply. Reports of Treasurer and A. P.
Trelawny— Ulster Spring (Miss I. C. Williams)	14.11.38	..	Water Supply. Correspondence. Meeting of Trelawny Br. Assoc. Report of A. P.
Westmoreland— Cairn Curran (P. A. Hemmings)	11.11.38	17	Land Settlement. Loan Bank. Meeting of Westmoreland Br. Assoc. Road.
Content (J. R. Gage)	28.10.38	Over 22	Juvenile Show. Demonstration Plot. Solo spray pump. Correspondence. Address by Instructor Shirley.
Grange Hill (Miss E. M. Segre)	18.10.38	32	Loan Bank. Meeting of Westmoreland Br. Assoc. Minor matters.
Porter's Mtn. (D. F. Bowen)	17.10.38	13	Holdings Improvement Competition. Correspondence. Report of A. P.

JUVENILE BRANCHES.

WESTMORELAND: Content.—Meeting held 28.10.38. Present: the President, Ivan Campbell; Instructor Shirley, Teacher Gage and 20 members. Correspondence: A letter from the Friendship Juvenile Branch inviting the Branch to a Juvenile Show on 9th November was read. It was decided that the members should make an effort to attend. The meeting decided to hold the Annual Prize Giving Function on 8th December. Prizes are to be awarded for the following: (a) The best kept garden plot. (b) The best essay on "My best Pet." (c) Essay on "The books I would select for my library and why." A short address was given by the Instructor. The meeting terminated with the singing of the National Anthem.

E. I. CAMPBELL,
Secretary.

PORTLAND : Rock Hall.—Inaugural meeting held 11.10.38. Present: Instructor G. R. Graham, Teacher Vaughan, Messrs. V. Z. Brown and Joseph Bell of the senior Branch, and about 60 children of the upper and middle division of the school. Instructor explained the aims and objects of a Juvenile Branch. Fifty-two children were enrolled as members. Officers elected: President, Master Jasper Campbell; Vice-President, Master Clarence Taylor; Secretary, Miss Verna Edwards. It was decided to start a Vegetable Project. The meeting closed with the singing of the National Anthem.

VERNA EDWARDS,
Secretary.

Department of Agriculture.

POSTAGE.—Postage on all communications addressed to the Superintendent of Public Gardens, Hope Gardens, Kingston P.O., must be prepaid.

REMITTANCES.—The full value of all orders must be prepaid. In making payments, cheques and postal orders should be made payable to the Director of Agriculture and crossed Bank of Nova Scotia. Postage stamps are accepted only for amounts smaller than 6d.

COST OF BOXES.—The costs of boxes used in packing plants will be added to each account at the rate of 6d. for every 10 plants or portion of 10 plants.

N.B.—BOXES ARE NO LONGER RETURNABLE.

FRUIT TREES AND PLANTS.—Price 1d. each, except where otherwise stated, delivered free at any railway station.

Star Apple, Otaheite Apple, Jack Fruit, Nilgiri Hills Blackberry plants from beds; Coco Plum, Naseberry, Granadilla, Guava, Cherimoya, Mangosteen, 6d.; Grape, 3d.

ECONOMIC PLANTS.—Price 1d. each, except where otherwise stated, delivered free at any railway station.

Ylang-ylang (*Cananga odorata*), Cinnamon, Annatto, Breadfruit, 9d.; Sarsaparilla, Avocado Pear.

ORNAMENTAL SHADE TREES AND SHRUBS.—Price 1d. each, except where otherwise stated, delivered free at any railway station.

Bauhinia Galpini; Brownea coccinea, Couroupita guianensis (Cannon Ball Tree), 3d. Dillenia indica, 3d. Michelia Champaca (Champak Tree) 3d. Palms, several species; Poinciana regia (Flamboyant), Posoqueria longiflora, Saraca indica (Asoka Tree), 3d. Tecoma spectabilis (Poui), 3d. Jacaranda mimosæfolia, 3d. Spatholea campanulata, 3d. Cassia nodosa, 3d. Triplaris surinamensis, Ficus lucida 1/-. Cassia grandis; Thuja 6d. each. Ficus elastica, 1/- each. Murraya exotica, Cordia sebestena, Diospyros discolor (Ebony), 3d. Lignum vitae.

FREE ECONOMIC PLANTS.—Pithecolobium arboreum (Wild Tamarind), from beds; W. I. Cedar, Mahogany, Bastard Cabbage, Bitter Damsel.

NOTE.—Plants are conveyed free by railway. They are guaranteed in perfect order when sent out of the Gardens, but the Department is not liable for any loss or damage in transit. PLANTS WILL NOT BE SENT TO PRIVATE RESIDENCES.

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 - - - *ASK THOSE WHO KNOW!*

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THE JOURNAL

OF THE

Jamaica Agricultural Society.

The more people do the more they can do; he who does nothing renders himself incapable of doing anything; while we are executing one work we are preparing ourselves for undertaking another.

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FEBRUARY, 1939.

No. 2

BOARD OF MANAGEMENT.

THE regular monthly meeting of the Board of Management of the Jamaica Agricultural Society, was held at the offices of the Society, 10-12 North Parade, Kingston, on Wednesday, the 4th day of January, 1939, at 11.30 a.m. There were present: Hon. George Seymour Seymour, O.B.E., First Vice-President, in the Chair; Mr. U. Theo. McKay, Second Vice-President, Messrs. R. A. Burke, T. J. Cawley, C. O. Cover, D. D. Phillips, C. L. A. Stuart; P. St. L. Bacquie, and A. P. Hanson, Supervisors of Instructors, and the Secretary, Arthur Thelwell.

Apologies for Absence.

Apologies for absence were submitted on behalf of the Rev. W. J. Thompson, the Director of Agriculture, Hon A. B. Lowe, Messrs. H. G. Dunkley and W. Harper Watson.

Confirmation of Minutes.

The minutes of the previous meeting having been circulated, they were taken as read, and on the motion of Mr. Phillips, seconded by Mr. Cawley were confirmed.

Death of Mr. Simpson.

The Chairman expressed regret at the death of the late Hon. H. A. L. Simpson, O.B.E., a former member of the Board of Management of the Society. He referred to the excellent services which Mr. Simpson rendered to Jamaica. He also said that a wreath had been laid on behalf of the Society.

Cercospora Leaf Spot of Bananas.

Arising out of the minutes, Mr. Cawley brought to the attention of the meeting that at the last meeting of the Board of Management in connection with the discussion which took place on the subject of Leaf Spot Control, "the proposal of Mr. Burke that the Board should request the Department of Agriculture to invite Mr. Cawley and the Secretary as representatives of the Society to attend the Conference which it is proposed to hold was agreed to."

He said that the Society had been ignored in the matter.

Meetings at which the subject had been discussed were held and a Committee had been appointed, but none of the representatives which the Board had asked to be included was a member. Mr. Hodges who had acted as Chairman of the Committee at the first Conference had mentioned to him that he had invited Mr. Seymour to attend and

invited him (Mr. Cawley) to attend also. He had not, however, accepted the invitation as he felt that the request of the Society had not been taken notice of.

The Chairman said that he had attended the Conference and action was being taken to proceed with the campaign against the disease.

Government with the co-operation of all the Fruit Companies in the Island were organizing a Campaign which they hoped would prove effective. He further said that the request quoted by Mr. Cawley had been made by the Board in the presence of the then Acting Director of Agriculture with whom the Secretary had discussed the matter after the meeting, but no official communication had been sent in writing.

The Secretary was directed to send forward the request as decided at the last meeting; and also to say that the Board appreciated the appointment of the Hon. Mr. Seymour as a member of the Committee.

Railway Passes.

In reply to a question from Mr. Phillips the Chairman stated that due to lack of time and opportunity he had not yet been able to take up this matter with Government, but he would endeavour to do so at an early date.

Matters arising out of the Previous Minutes.

(a) *Membership of Society—Proposed Amendment of the Rules.* On the motion of the Chairman, seconded by Mr. Stuart, the Board went into Committee to consider this subject. A memorandum from the Society's solicitors was submitted. It was decided that the matter should be deferred.

On the motion of Mr. Seymour seconded by Mr. Phillips the Board resumed.

(b) *Development of Lower Clarendon (Vere).* The recommendation from the Instructors Committee that a Deputation be appointed to wait on Government with a view to investigating the possibilities of irrigation in Lower Clarendon, was considered, and the following were named:—

Messrs. McKay, Cawley, Phillips, and Dunkley.

It was decided that the Secretary should arrange for these members to visit Lower Clarendon and confer with the residents and collect all the necessary first hand information. A report should then be made to the Board and after confirmation should be conveyed to the Government with the request that they receive the Deputation.

(c) *Employer's Liability for Protection of Employees.* The Secretary stated that in accordance with the directions of the last meeting he had communicated with the solicitors with regard to Insurance of employees under the new Workmen's Compensation Law. The Society was being held covered in respect of employees within the scope of the Law as shown on the list supplied to the Solicitors. Other particulars necessary to bring this matter to a finality had been supplied on the request of the solicitors.

The Secretary was directed to find out the cost of this Insurance.

Statement of Accounts.

Statement of Accounts for December was laid on the table.

Notices of Motions.

(a) *Mr. Maxwell re Bye-Laws of the Society.* It was decided that as this Notice of Motion had been carried on the Agenda since October,

1938, the item should be removed and if the mover so desired he could submit it at a subsequent meeting.

Communications.

(a) *Letter from Green Island Branch expressing appreciation of Board's efforts re Cement Factory.* Letter dated 13th October, 1938, was submitted as follows:—

"We the members of this Branch feel it our duty to send you a few words of encouragement after reading your report which was published in the Gleaner of the 6th inst. re the proposed erection of a Cement Factory in the Island.

We do realise and appreciate the time and energy it must have taken your special Committee to get up such facts as you have published which we are sure will satisfy every well thinking person in this Island.

We trust that Government will give every assistance in this new venture which will be a means of helping to solve the problem of unemployment."

(Sgd.) D. A. WEBSTER,

Secy. Green Island Branch.

This was noted, and the Secretary was instructed to thank the Branch for their courtesy.

Half-Yearly Meeting.

(a) Minutes of previous Meeting.

(b) Secretary's Report.

(c) Agenda.

The Secretary stated that these were submitted for the information of the Board.

The Agenda was scrutinised and revised.

During the discussion the following item listed on the Agenda was taken:—

Letter from C.S.O. re Auditing of Accounts.

28th December 1938.

No. 4658/37.

"I am directed to refer to my letter, No. 4658/37 of the 22nd September, 1938, on the subject of the auditing of the accounts of the Jamaica Agricultural Society and to request that the Society give further consideration to the matter. I am to add that no charge will be made to the Society for the auditing of their accounts by the Auditor General.

2. If the Society has already arranged with Messrs. Brennan and Parkinson to do the auditing for the current year, it is suggested that the change over be made at the commencement of next year."

(Sgd.) A. G. GRANTHAM,

Colonial Secretary.

Mr. Cover again expressed the opinion that it would be advisable for the Society to employ a private Auditor to carry through a supplementary audit and finalise the accounts after the audit by Government had been completed. This supplementary audit he said, should be confined to the Seeds Department.

The suggestion of Mr. Stuart that a small Deputation should be appointed to wait on the Colonial Secretary to explain the position more fully was not entertained as the Chairman stated that this phase of the question had already been brought to the notice of the Colonial Secretary, who had expressed himself as not being in favour of it.

Reports, etc., from Committees.

(a) *Instructors.* The following was submitted for the information of the Board:—

4th January, 1939,

To the Board of Management:

The Instructors Committee met this morning and beg to report as follows:—

1. The Secretary has been instructed to communicate with the Director of Agriculture with a view to making the necessary arrangements to complete the round of visits to Demonstration Plots.

2. Arrangements are being made for Instructors to visit and observe demonstration in terracing at the Buckingham Plot.

3. Foreman Mullings has been granted leave on full pay; at the expiration of 8 weeks a report as regards his fitness for work is to be submitted.

4. Foreman Harriott has been granted further leave without pay. Before resuming his duties a Medical Certificate as to his fitness for work is to be submitted.

5. Arrangements have been made for Instructors Coke and Jones to co-operate with the Agricultural Chemist in testing of banana soils in St. Mary.

6. Government has informed the Committee that Mr. W. D. Marr, the Instructor who was seconded to the Department of Agriculture, will resume his position as an Agricultural Instructor with the Society on the 1st of April, 1939.

7. The following leaves of absence have been granted to Instructors:—

Instructor Shirley—10th December, 1938 to 9th January, 1939, on Doctor's Certificate.

Foreman Scudamore—10 days from 14th December, 1938, on Doctor's Certificate.

Instructor Coke—3rd to 11th January, 1939.

Instructor Hastings—16th to 28th January, 1939.

8. Arrangements have been made for providing assistance for Instructor Darby in connection with the Tomato Growing Project in Southern Manchester.

9. H. E. Chevannes, Agricultural Foreman, working under Instructor Hastings in St. James resigned his position and the Committee accepted his resignation.

10. Reports from the Brockenhurst and New Forest Demonstration Plots were presented.

(Sgd.) U. THEO. MCKAY, for Chairman.

(Sgd.) A. F. THELWELL, Secretary.

(b) *Country Fires Law*. The Secretary stated that the Committee appointed to consider this matter had completed its deliberations as set out in the report, which had been circulated to the Board.

The report was taken as read and was adopted.

(c) *Report of Deputation re Cement Factory*. The Chairman stated that the Deputation waited on Government and a very satisfactory Conference took place. A letter had since been received from the Colonial Secretary as listed on the Agenda.

Small Stock Subsidies.

(a) *Application from Preston Juvenile Branch for half cost of buck*. A grant of 30/- under the Rules and Regulations governing Small Stock subsidies was authorised.

Office.

(a) *Leaf Spot Control Account*. The Secretary stated that the Government had placed at the disposal of the Society a sum of £1,000 in order that stocks of material for the control of *Cercospora* Leaf Spot of bananas should be held. This account had hitherto been kept with the account of the Seed Department. A new account had now been opened with the Royal Bank of Canada, and it was necessary that a resolution authorising signatures for withdrawal of amounts be passed by the Board of Management.

On the motion of the Chairman seconded by Mr. Phillips the following resolution was passed:—

"Resolved that this Board of Management authorise the Secretary and Accountant of the Society to sign cheques in respect of Account No. 2 in the Royal Bank of Canada (Leaf Spot Control Account—*Special a/c*)."

Diseases of Plants & Animals: Insect Pests.

(a) *Panama Disease of Bananas—Report for November*. The Secretary stated that this was not yet to hand.

Mr. Cover said he wished to point out again that the figures supplied on these reports on the incidence of Panama Disease of Bananas were useless; taking the Parish of St. Thomas for instance on the report for June it was stated "No. of diseased plants treated 2,532", on the report for August "2,182", and on that for September "1,794", and when it came to "cases of fields not previously infected", this was recorded as "nil". As the figures stood they conveyed no information to him.

The Secretary was instructed to draw the attention of the Director of Agriculture to this matter and to ask that the report be revised and simplified so that the information contained therein may be easily ascertained and prove useful.

Resolutions.

(a) *St. Thomas Branches Associated re:—(i) Cercospora Leaf Spot Diseases of Banana.* The Secretary was instructed to place this resolution on the Agenda for the Half-Yearly Meeting, and also to forward a copy to the Colonial Secretary.

(ii) *Relief work for labourers in St. Thomas.* This resolution asked that work be provided for labourers for the period immediately preceding the Christmas season from the Special Grant made by Government.

The Secretary stated that on receipt of this resolution he had advised the Branch that the matter had already received attention.

(iii) *Roads.* The Secretary was directed to forward to Government the resolution asking that trunk Roads in Land Settlements be built to Public Works Department specifications and maintained by that Department, while the other roads be under the care of the Parochial Boards.

(iv) *Land Settlement.* This resolution which dealt with the method of payment for lands under the Land Settlement Scheme was referred to the Half-Yearly Meeting.

(b) *St. Mary Branches Associated re (i) Roads.* The Secretary was directed to forward these two resolutions asking that (i) Government take over important first class parochial roads from Parochial Boards, in view of the fact that these Parochial Boards would have to maintain new roads in the new Land Settlements, and (ii) a driving road through the district of Mount Joseph, to Government and the Parochial Board of St. Mary, respectively.

(ii) *Land Settlement.* The Secretary was directed to forward the three resolutions asking for the purchase of properties for Land Settlement, to the Acting Land Settlement Commissioner.

(c) *Hanover Branches Associated re Land Settlement.* The Secretary was also directed to forward this resolution to the Acting Land Settlement Commissioner.

(d) *Trelawny Branches Associated re (i) Free Distribution of Plants.* The Board did not entertain this resolution which asked for the free distribution of sugar cane, pineapple, tobacco and citrus plants.

(ii) *Foreman for Upper Trelawny.* The Secretary stated that this matter was dealt with by the Instructors Committee that morning.

(iii) *Roads.* The Secretary was directed to forward to the proper authorities, the three resolutions relative to roads.

(iv) *Land Settlement.* Five Resolutions relating to Land Settlement were submitted and the Secretary was directed to forward these to the Land Settlement Commissioner.

(v) *Sale of Crown Lands.* Two resolutions relative to the sale of portions of Crown Lands in the Troy Pontrepant area and Crown Lands in Upper Trelawny were submitted.

The Secretary said he had taken up the matter with the Land Settlement Commissioner.

It was decided to forward the resolution to Government.

(vi) *Relief Work.* This resolution asked that work on the Alps Wharf road be started to provide relief work for labourers, and that the Parochial Board be asked to provide the necessary tools for such work.

Mr. McKay said that a definite pronouncement should be made with regard to requests such as these. Many of them were not genuine, as

the manner in which the work was received and performed indicated. A lot of unnecessary expenditure of money was undertaken in an effort to relieve unemployment, and very often the work was done in a most unsatisfactory manner and the labourers who asked for the work would sometimes refuse to take it if they were not satisfied at the amount of work being given out. He was afraid that it would all come back on the taxpayers.

Mr Phillips supported this view and said that people who suffered most under these conditions were the agriculturists in the country parts who, after preparing their products for sale for instance bananas, found that no purchases were being made because of labour unrest. He thought it was quite time that the matter was properly handled and the existing conditions remedied. He felt that the people should understand that the Agricultural Society was not in accord with the existing conditions.

The Chairman expressed regret at having to leave, and vacated the chair which was taken by the Third Vice-President, Mr McKay.

Mr Cawley also left and as there was no quorum it was decided to complete the Agenda and ask for indemnification at the next meeting of the Board.

(vii) *District Nurse*. The Secretary was directed to submit this resolution which asked that a district nurse be appointed to serve the districts of Deeside, Hope Mountain and Dromilly, to the Trelawny Parochial Board.

(e) *St Elizabeth Branches Associated re (i) Roads*. Resolutions relative to the roads from Ginger Hill to Water Spring, Cotterwood to Kilmarnock and from White House to Kilmarnock were submitted and the Secretary was directed to forward these to the proper authorities.

(n) *Bridge*. This resolution asked that the bridge which spans the Orange River between St James and St Elizabeth should be widened, and the Secretary was directed to forward the same to the Director of Public Works.

(f) *St Ann Branches Associated re (i) Credit for Seeds*. The Board regretted that they could not entertain this resolution.

(ii) *Improved Postal Facilities*. This resolution asked for improved postal and telegraphic facilities between Sturge Town and Brown's Town. The Secretary stated that he had taken up the matter with the Post Master for Jamaica.

(g) *Bangor Ridge re appointment of Road Headman*. The Secretary was directed to forward this resolution which asked for the appointment of a Road Headman for the No. 4 Division of the Parish to the Portland Parochial Board.

(h) *Cambridge re (i) Road*. This resolution asked for the construction of the Trotwood-Catadupa road.

The Secretary was directed to forward the same to Government.

(i) *Long Road re Road*. This resolution asked for the conversion of the No. 14 Parochial road of the Annotto Bay division into a Main Road, and the Secretary was directed to submit the same to Government.

(ii) *Land Settlement*. Two resolutions dealing with questions relative to Land Settlement were submitted and the Secretary was directed to forward the same to Government.

New Members.

On the motion of Mr Cover seconded by Mr. Stuart Mr. F. H. W. Fennell, Alexandria P.O. was elected to the membership of the Society.

Other Business.

(b) *Letter from C.S.O re Cement Factory.* The following was submitted and noted:—

30th December, 1938.

No 4161/32

With reference to the letter from this Office No. 4161/32 of the 21st November, 1938, and my interview with a deputation from your Society on the 14th December, 1938, in regard to the question of erecting a local cement factory, I am directed to inform you that the Government will await the receipt of the communication which Mr. G. H. E. Vivian of the Associated Cement Manufacturers Limited promised to forward to your Society.

(Sgd.) J. D. LUCIE SMITH,
for Colonial Secretary.

(c) *Letter from R. D. Binns re Dipping Tank.* Mr. Binns stated that no dipping tank was available for the southern section of St. Elizabeth and that animals there were infected with ticks owing to protracted drought. On behalf of the peasantry who had approached him he was offering lands in the Pedro Plains area on which there was a well, free of charge for the erection of a Dipping Tank.

The Secretary was directed to make representations to the Director of Agriculture in the matter

(d) *Resolution from Middleton Branch re Weighing of canes.* The Secretary was directed to refer this matter to the Deputation which would wait on the Sugar Control Board to discuss matters relative to canes produced by Small Farmers

(e) *Resolution from Deeside Branch re Land Settlement.* The Secretary was directed to forward this resolution asking that Government purchase certain properties, to the Land Settlement Department.

(f) *Resolution from Prospect Branch re (i) Post Office.* The Secretary was directed to take up the matter of the Post Office which was promised for the Crawle River district, with the Post Master for Jamaica

(n) *Water Supply* This resolution asked for a proper water supply for the Prospect district, and the Secretary was directed to refer the same to the Parochial Board of Clarendon.

(g) *Resolution from Rock Branch re (i) Land Settlement.* The Secretary was instructed to refer to the Land Settlement Department, this resolution which asked for the purchase of specific properties.

(ii) *Registrar Office for Rock area.* The Secretary was directed to submit this matter to the Registrar General.

(iii) *Road* The resolution asking that the Parochial road from Osborne Store to Rock be converted into a main road was directed for reference to Government.

(h) *Resolution from Grantham Branch re Water Supply.* The Secretary was directed to represent to the Parochial Board the request of the Grantham Branch that a wholesome water supply be provided for the district of Grantham.

(i) *Resolution from Grange Hill Branch re Land Settlement.* Properties considered desirable for the purposes of Land Settlement were named in this resolution, and the Secretary was directed to refer the matter to the Land Settlement Department.

(j) *Resolution from Kilmarnock Branch re Land Settlement.* The Secretary was instructed to send this resolution also to the Land Settlement Department.

(k) *Resolution from Cacaoon Branch re (i) Cercospora Leaf Spot of Bananas.* The Secretary was directed to include this resolution along with those on the same subject to be placed before the Half-Yearly Meeting.

(ii) *Packing House*. This resolution represented that a building in Montego Bay formerly used for dehydrating purposes was available for use as a Packing House, and requested that this should be utilised by Government.

The Secretary was directed to forward this resolution to Government.

(l) *Resolution from Barbican-Jacks Hill re Road*. The Secretary was instructed to submit this resolution to the Kingston and St. Andrew Corporation.

(m) *Resolution from Lower St. John's Branch re (i) Land Settlement*. The Secretary was directed to refer this matter to the Land Settlement Department.

(ii) *Traffic Sign*. The Secretary was directed to refer this resolution asking for the erection of traffic signs near to the Guanaboa Vale School, to the Island Traffic Authorities.

(n) *Resolution from St. Andrew Branches Associated re—(i) Land Settlement*. The Secretary was instructed to forward to the Land Settlement Department, the three resolutions submitted, dealing with requests from the Rock Hall, Clifton and Red Hill Branches.

(ii) *Schools*. These resolutions asked for establishment of an Elementary School for the Rock Hall District, and the re-establishment of the Mt. Prospect Elementary School, and the Secretary was directed to refer these matters to the Department of Education.

(iii) *Cassava Products*. This resolution asked that Government include starch and other products of cassava among articles offered for sale through the Marketing Department.

The Secretary was directed to submit this matter to the Marketing Officer.

(iv) *Jippi Jappa Industry*. The Secretary was instructed to refer to the Department of Agriculture, this resolution which asked that Government be asked to propagate the plants from which the Jippi-Jappa Straw is obtained, which was mentioned as an excellent soil binder, in connection with their afforestation programme.

(v) *Certificates from Industrial Institutions*. This resolution was deferred for further enquiry.

(vi) *Road*. This resolution, dealing with the Darley-Spring section of the Golden Spring-Mt. James road was directed for reference to Government.

(o) *Resolution from Race Course Branch re Rice Industry*. This resolution requesting the extension of the Rice Industry was referred to the Secretary for investigation.

(p) *Letter from Mr. C. A. McPherson, Half-way Tree re Waste and rejected citrus for cattle feed*. Mr. McPherson of Half-way Tree suggested that recommendations be made to the Department of Agriculture for the necessity of arranging to utilise waste and rejected citrus for making cattle feed. He said that bulletins of the American Department of Agriculture showed progress made in that country along such lines.

It was decided that this matter should be referred to Mr. G. G. R. Sharpe for his observations on the matter.

(q) *Resolution from Thompson Town Branch re Water Supply*. This resolution asked that a proper water supply be established in the Thompson Town district.

The Secretary was directed to forward the same to the Parochial Board of Clarendon.

The meeting then adjourned to Wednesday, the 1st day of February, 1939, at 11.30 a.m.



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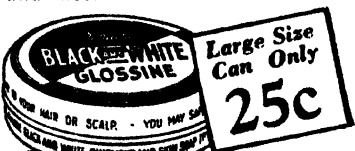
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IRISH POTATO SEASON.

THIS is the big Potato Planting Season, and planters would be well advised to refresh their memories as to the technique of growing potatoes so as to avoid loss.

There have been many complaints recently from growers who hold that their seed sets did not germinate.

When the seeds have been bought, if they are not well sprouted they should be spread out thinly in a cool place (the cellars under the houses in Manchester are most suitable) or they may be laid out in a cool spot in the field, and covered with straw. The idea is to keep them away from light and heat avoiding at the same time any extreme dampness. The potatoes should not be planted until they have been well sprouted.

Many growers attempt to get too many sets from a single potato and cut their bits far too thinly. Very small potatoes may be planted whole while large potatoes may be cut so as to leave about two eyes on each set. The cutting should not be done in sunlight, nor should the sets be exposed to drying winds. A clean knife is necessary, and when a bad potato has been cut the knife should be disinfected before others are cut. The cut bits should be laid out thinly, and the cut surfaces sprinkled lightly with ashes.

Bits should not be planted immediately after cutting; if left under proper conditions the cut surfaces will form a corky callous. This prevents water soak and subsequent rot. If the callous is badly formed it cracks, and the bit stands a good chance of rotting.

The practice of cutting and dropping bits at the same time is not a good one. Bits should be cut in the cool of the afternoon and planted on the following day.

Depth of furrows and depth of planting also appear to give a lot of trouble. No hard and fast rule can be laid down as to the exact depth for planting. Sets should not be planted so shallow that the sun will dry out the soil around and cause them to shrivel; neither should they be planted down to such a depth that they lie in a cold damp soil and eventually rot.

Fourteen inches is as near as each bit should be dropped in a row.

If fertilizer is being used this should be well stirred into the bottom of the drill the day before planting. The usual practice is to put half the necessary amount of fertilizer at the bottom of the drill and the balance later on, down both sides of the row of plants, in a strip before the first earthing up.

Returns from crops are greatly reduced by indifferent earthing up or the omission to earth up at all. As soon as the potatoes begin to grow the moulding should begin and four mouldings are not too many for a single crop. The plants should not be moulded too high at a single moulding. Potatoes belong to the same class of plants as the tobacco and the tomato. As soon as the tomato plant is moulded up it throws out new roots; as soon as the potato plant is moulded it sends out new stolons on which the plant will bear potatoes.

The second moulding should begin further away from the plant, toward the row, and care should be taken not to cut the stolons which have already been thrown out. Serious damage may be done by indifferent moulding.

The interval between the rows of plants should be kept deeply forked so as to encourage the development of the stolons. As soon as the plants begin to flower, moulding and all other forms of cultivation should cease.

Spraying with Bordeaux should be undertaken just before the first earthing. 4-4-40 Bordeaux has been found to give good control of "blight" especially if a sticker in the form of a little Agral is added to the Bordeaux. A good powerful spray is necessary and it should be borne in mind that spraying the plant is not washing it. Care should be taken to see that the emulsion reaches the under side of the leaves of the plants.

The earth throughout the potato patch should be kept loose and free and not be allowed to bake. A Dutch hoe or small hand Junior Planet plough or a heavy rake is the implement needed for this operation.

High losses take place from cut worms and it is safe to treat the whole area to be planted with cut worm mixture beforehand.

Ants also take large toll of plants. All ants' nests should be located, treated and destroyed before planting the field.

Irish Potatoes is an expensive crop to cultivate; it is a *short* crop and all the operations necessary must be carried out faithfully or else planters are simply courting failure.

[A.T.]

RICE INDUSTRY.

K EEN interest has once more been revived in Rice growing and in view of this some pictures depicting activities in the cultivation are reproduced in this month's Journal.

The Society uses large quantities of Swamp Rice for compounding

SWAMP RICE CULTIVATION.



The above scene shows one of the Rice Fields of Westmoreland.

chicken feed and the demand for this type of Rice has risen considerably recently.

Last year the Society imported various types of Hill Rice and an article on the cultivation of Hill Rice was published in a recent Journal.

Growers in the Vere and Old Harbour areas have experienced fair success with the cultivation of this type of Rice, which has so far yielded a crop of better quality than the Swamp Rice.

A Huller has recently been imported, and experiments in putting Native Rice on the market have proved highly successful. The Rice is hulled and fanned and sold in large and retail quantities to members.

A GOOD CROP.



HIGH QUALITY NATIVE RICE

Reaped from fields in Westmoreland. Returns of 3,000 lb. grain may be considered a good average crop.

An article giving the results of an experiment on Hill Rice cultivation with an illustration of an improved locally designed Thresher will be published in next month's Journal.

It has been held hitherto that Jamaica cultivators are not partial to Rice growing because it involves wet feet. In these days of agricultural stress, such a slight objection as wet feet, especially when Rubber Boots are so cheap, should not be allowed to stand in the way of the development of a possible Industry.

During the years 1936 to 1937, we imported Rice to the value of £338,660 and it seems queer that an important ingredient in the popular Jamaica dish of Rice and Peas should consist of an imported article.

A.T.

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FERTILIZERS.

By A. P. HANSON, *Supervisor of Instructors.*

SCARCELY a day passes but the field Staff J.A.S. is called upon by some member or members of the farming interest of the Island to answer questions, give instruction, or correct mistakes regarding the use of fertilizers. Personally I have been frequently asked to write an article on the subject for the *Journal*. The following elementary ideas are intended for those who are in search of such knowledge.

The Soil.

The soil is not dead matter affording a root-hold to plants and feeding them with a few earthy substances. The process is not, as it was once believed to be, one of solution and diffusion. Rather it is a fact that the soil is a great work-shop. It teems with life especially when rightly treated. In other words the soil is alive and must be treated as thoughtfully as other living things are treated.

The soil is inhabited by countless numbers of living workers. We must always bear in mind these workers beneath the surface. For the purpose of this article we are concerned with the little organisms known as bacteria. Their work is to convert certain substances in the soil into actual available or soluble plant food. These organisms when treated rightly do not only live and multiply but they work for us. To do this they need food especially humus, also warmth, moisture and well tilled aerated soil. They cannot work in very dry soil, or very wet soil such as sticky putty-like clay, or in sour soil. Vegetable mould, mulch, forking, trenching and all our usual farm practices must be employed or fertilizer applied will be wasted.

Manures.

Manures may be defined as substances added to the soil to increase its fertility. They have been classified in different ways—one convenient classification being *Organic Manures*, and *Inorganic Manures*. The Organic Manures are the remains of animal and vegetable substances. The Inorganic are known as Commercial or Artificial Manures, but are conveniently called *Fertilizers*.

Lime is an Indirect Fertilizer. Its action improves the texture of the soil. It renders heavy clay soil more open to air and rain, and as a result quickens the work of soil bacteria. The quantity of lime required depends on the consumption of the soil. Where from the sticky nature of the soil, plant food is locked up lime will be found beneficial, applied at the rate of 1 to 2 tons per acre; if in small quantities, 8 to 12 ozs. per square yard, being used as a surface dressing. Lime has an exhausting effect on the soil when applied frequently without being followed up with organic matter.

All the pen manure stable manure, droppings of animals, sweepings, etc., are comprised in the class of Organic Manures. Organic matter assists a light soil to retain moisture and withstand drought, thereby encouraging bacterial action; a heavy soil is made lighter, porous, and easy to work. Not only is plant food set free slowly though steadily but in this case also soil bacteria are encouraged.

Plant Foods.

There are three main essential plant foods supplied by various substances. These essentials are:—

1. Nitrogen supplied by such nitrogenous fertilizers as Nitrate of Soda; Calcium Cyanamide called also Nitrolim; Sulphate of Ammonia, etc.

2. Phosphorus supplied by Phosphatic Fertilizers such as Superphosphate, Ground Mineral Phosphate, etc.

3. Potash supplied by Wood Ash and Potassic Fertilizers such as Sulphate of Potash, Muriate of Potash, Kainit, etc.

A soil is infertile when it fails to supply the growing plant with the mineral materials it requires in suitable condition and quantity. The fertility of a soil is partially determined by the supply of nitrogen, phosphorus and potash it contains. If any one of these three substances is wanting no excess of the other two can make up for the deficiency.

The nitrogen promotes stem and leaf growth. It is responsible for the fresh green leaves of plants. If not properly applied it is capable of producing soft, delicate, large leaves such as offer attraction to diseases and pests. Too much of it causes rank growth in which even a fruit tree may exhaust its energy.

The phosphorus promotes fruit bearing, and speeds up maturity.

The Potash improves quality, and resistance to disease. Beauty, flavour, aroma and keeping quality are all increased by the use of potash.

Nitrogenous Fertilizers.

Nitrate of Soda is a quick-acting fertilizer. Its effects on the plant or plants may be observed in a comparatively short period. Promoting as it does stem and leaf growth vegetables grown for the sake of the leaves, for example:—cabbage, lettuce and kalulu, profit considerably by its use. It is also used as a top dressing for backward crops.

Nitrate of Soda was originally found in the rainless region of Chile, hence it is known as Chile Saltpetre. It contains 15 to 16 per cent. nitrogen. Being readily soluble it is easily washed out of the soil. It should be given in several small dressings according to the life time of the plant. If used over a period of years it makes clay soil sticky and troublesome to work. It is applied at the rate of 1 to 2 cwt. per acre. In a garden $\frac{1}{2}$ to 1 oz. per square yard is the rate. Applied as a solution use 1 to $1\frac{1}{2}$ ozs. dissolved in 1 to 2 gallons of water. It must be applied directly to the soil not to the plants.

Sulphate of Ammonia is produced as a by-product in coal gas manufacture, but chiefly chemically from the atmosphere. It may contain as high as 20 per cent. nitrogen in the form of Ammonia. By bacterial action in the soil the nitrogen changes into nitrate in which state it is available for the plants. Being acid, Sulphate of Ammonia tends to exhaust the lime in soils. It should therefore be replaced every two or three years by some other nitrogenous manure; or the land should receive dressings of lime periodically. An average application of Sulphate of Ammonia is 1½ to 2 cwt. per acre; or 1 to $1\frac{1}{2}$ ozs. per square yard; or 1 to $1\frac{1}{2}$ ozs. dissolved in 1 to 2 gallons of water.

Calcium Cyanamide is also known as Nitrolim. It contains as high as 20 per cent. nitrogen, and 22 per cent. caustic lime. The nitrogen on

under-going changes in the soil becomes available. It is best stored in drums. In the case of annual crops it should be applied two or three weeks before sowing the seeds. It is most useful in soils deficient of lime.

Phosphatic Fertilizers.

Phosphatic Fertilizers supply phosphorus. Broken bone was the first phosphatic fertilizer used. Later on the bone was found to act more quickly in the finer condition. The bone was then ground and used as bone meal or bone dust. The quickest result is obtained, however, with steamed bone which has been pulverised. This is fit for immediate use.

Large deposits of rock phosphates are found in parts of Canada and parts of the United States including South Carolina, Tennessee, etc. These rock phosphates are the fossil remains of animals, chiefly fish-eating birds and their dung. The best of these rocks pulverised and mixed with a calculated weight of sulphuric acid, produces a *Superphosphate* containing 15 per cent. phosphoric acid. It is applied at the rate of 1 to 2 cwt. per acre. Such crops as tomatoes and fruits generally are on starvation diet if grown without a phosphate.

Basic Slag and Ground Mineral Phosphate are other forms of Phosphatic fertilizers.

Potassic Fertilizer.

Potassic Fertilisers supply potash. Until the discovery of potash salts, ashes were the chief potash fertiliser used. Wood ashes if protected from water contains generally not only potash but lime, and a small percentage of phosphoric acid.

Germany, France and the Dead Sea Area are the chief sources of the world's supply of potash.

The purest and most generally used of Potassic Fertilisers is Sulphate of Potash. It is applied at the rate of 1 to 2 cwt. per acre, and is especially beneficial for tobacco, beets, onions, potatoes, root crops generally, bananas and other fruits, and sugar cane. Plants take in potash when they are quite young, therefore it should be early applied.

Other forms of Potassic Fertilisers are Kainit and Muriate of Potash. They contain common salt, and must be specially prescribed.

Compound Fertilizers.

Any fertilizer which supplies two or three of the main essential fertilizers mentioned above, namely nitrogen, phosphorus and potash, is a Compound Fertilizer. A Straight Fertilizer supplies only one.

Compound Fertilizers are sometimes designated 4:10:12; 7:10:12; 10:10:12, etc. These figures represent the main essential plant foods in the order of nitrogen, phosphorus and potash, the figures being the proportion in which they occur in the particular Compound Fertilizers.

There are several other Compound Fertilizers on the market, among them being "Ammophos," "Nicifos," etc.

NITRATE OF SODA

is the most valuable source of active nitrogen.

It possesses two important advantages

1. It converts soil potash and makes it available to plants.
2. It does not increase the loss of lime from soil as is done by other nitrogen fertilizers.

It is most useful as top dressing and provides great stimulation for young plants.

CHILEAN NITRATE OF SODA

may be purchased either by the bag or by the ton, prices on application

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Soil Analysis.

The Government Agricultural Chemist has been busy classifying the soils of the Island into types and groups. His findings are a valuable index to the kinds of fertilizers to be used. Those being supplied by the Jamaica Agricultural Society in connection with the Banana Improvement Campaign are based on this classification.

How to apply Fertilizers.

As stated above, fertilizers may be applied dry or wet. Apply the clay form or powder in showery weather. Before applying the fertilizer as a solution do some watering of the soil with ordinary water a few hours before application.

In applying the dry fertilizer, that is the powdery form, spread the quantity recommended over the soil evenly. Work it in to a depth of about an inch. If the soil needs it give a good watering.

Do not allow the fertilizer to fall on the leaves and stems, etc., of the plant.

In dealing with rows of plants distribute the fertilizer along each side of the row, and between the pairs of plants. Another way is to spread the fertilizer around each plant in a ring.

Keep the soil hoed after applying fertilizer to prevent it (the soil) baking hard, or becoming sour.

As far as practicable apply the fertilizer at regular and proper intervals, not heavily at one time.

ANNATTO.

We have the following very interesting note from Mr. C. S. Byles, Agricultural Instructor in St. Catherine.

EDITOR.

Failure to Establish Seedlings.

RECENTLY I was called in by a gentleman who is very enthusiastic about Annatto, and who is cultivating this crop on a large and modern scale. He asked me to find out why more than half of his seedlings which were planted out during the October seasons had failed to grow.

I inspected the nurseries, made enquiries of the method of selecting seeds whether from the best trees of the best variety, whether the seeds were used immature or over-dried, if the nursery beds were properly prepared, and if the seeds were properly placed in the beds. I then inspected the field where the loss had occurred. From all appearances all my instructions had been indeed carried out in detail. The seedlings in the nurseries were of a very high standard. The field had been well prepared, and the plants were set out 10 x 10 in very smartly lined out rows.

After very careful observation I was able to arrive at the cause of loss—very simple and elementary it turned out to be. Most of the delicate little seedlings were planted out about six inches too deep.

The disappointment of our enthusiastic planter can well be imagined, especially considering his very commendable effort.

LIME EXTENSION CAMPAIGN.

By CLARENCE BYLES, Agl. Instructor.

For a number of years we concentrated on a Citrus extension campaign and there can be no question as to its success.

I propose to deal briefly in this article with the propagation and extension work being done in connection with the Lime Industry. It will not be out of place for me to mention the fact that this branch of the Citrus Industry has been brought back into prominence by the efforts of the Department of Agriculture, through the Marketing Division where it has been made possible to market our limes on more orderly and assured lines.

We must therefore concentrate our efforts now on efficient production of marketable limes. Most of our present crops of limes are produced largely from seedling trees which have had little or no cultivation and produce a large percentage of small undersized fruits. These trees have really got out of control so far as quality, quantity, and harvesting are concerned. This new campaign is to encourage lime growers to top-work all their trees which produce predominantly undersized or inferior fruit, but which are otherwise in reasonably good health; to encourage the destruction of all badly diseased lime trees and to replace them with budded trees of approved varieties.

In a search for limes of good type, a spineless, large-fruited, seedless lime which appears to be identical with that grown commercially in Florida under the name of "Seedless Persian Limes" has been found locally, and budwood is now available for extension work. Indications so far, however, point to the fact that this lime should only be budded on lime root stock.

Propagation of Seedlings and Budding.

This takes place by seeds which are very abundant in the average Jamaica lime. The seeds are planted in the same way as those of the orange in properly prepared beds of good tilth. Seedlings should be removed from the seed beds when about twelve inches in height and planted in a well prepared nursery. The nursery rows should be three feet apart and the seedlings should be planted about 18 inches apart in the rows.

The seedlings will be ready for budding when about the size of a pencil. As the lime has the tendency to produce more than one stem, care should be taken to remove any additional growth so as to procure a single straight stock. Budding operations are the same as in the case of the orange. Experience has shown that cutting off the upper portion of the stock above the bud when the bud has taken should be discontinued as the lime has a tendency to die back, and very often this continues below the bud. Girdling the stock just above the bud will produce the required results and this should be practised in place of cutting back. This system has also the advantage of providing a ready made stake for tying up the buds which is so essential in lime budding.

Top Working of Old Trees.

One has to appreciate the cost, time and labour, which will ultimately be wasted on the top working of unhealthy trees. When satisfied on this point the trees should be properly prepared in advance

of budding operations. Most lime trees have several stems many of which have grown out of control and out of order. This is where great care should be taken to remove only stems and branches which will not help to make a well shaped and balanced tree, bearing in mind that the more branches converted, the larger and more productive your new tree will be. *Never attempt to cut back the entire lime tree and await young growth for budding.*

Gumming usually results from the cut surface and in many instances the writer has seen the entire stock so infected with Gumosis that it dies and never replaces itself, and sometimes the tree dies as a result. Pruning and preparation of lime trees should be done during the dormant period to avoid gumming and the cut surfaces painted with Bordeaux Paste.

Budding operations can be successfully done the same day or very soon after the tree has been prepared. The buds should be inserted into the old original stems and branches should be selected for this purpose. Care should be taken to see that the buds are placed in a suitable position to produce a well formed and balanced tree. Here again it must be borne in mind that the practice of cutting off branches immediately after the buds have taken should be discontinued as the branches also have the tendencies to die-back and most often below the point of union. The same principle as in the case of seedling stock should be adhered to, that is girdling just above the buds and by a gradual process removing the foliage.

The larger the number of buds placed on a tree, the less trouble will result from young growth coming out on the stock below the buds. **This** also reduces the amount of shock to the tree when reducing the foliage.

Trees have been successfully converted and made to produce marketable fruit within the year of operations. Cultural improvements should be associated with these operations to assist establishing the new tree, and help to aid future production.

MIXED FARMING.

By CHAS. D. V. HENDERSON.

IN these days when artificial fertilizers are very much in evidence and largely used, (admittedly to the benefit of farmers), it is well for small farmers especially to bear in mind the value of stock in relation to agriculture.

It is unfortunately true that the stock industry of this Island received a great set-back by the increased use of motor transportation. But, is this any excuse for neglecting the small-stock industry?

Farmers complain that lack of land is responsible for this decline. In part this is true. I am however sure that despite this drawback, more can be done to foster and increase an industry so vital to our Island's agriculture.

Knowing that this appeal will meet the eyes of a large number of our farmers, I take this medium of bringing to their attention the necessity for mixed-farming, viz:—stock and crops going hand-in-hand. Such a system will, I am sure go a far way in improving our soil fertility, in preventing waste, as well as inculcating a thoroughness which is so often lacking on farms.

Let the agriculturist to-day, who has not already done so, decide on the type of stock best suited to his area, and set out to obtain a good strain of such an animal, then continue to improve and increase his herd, according to the lands at his disposal. He will find the manure of untold value to his plants. It contains all the elements necessary for their growth as well as for the production of crops. No question merits more attention on the part of the farmer than the maintenance of the quality of his land, and this can only be done by keeping it in good condition returning to it the elements taken off by cropping.

In this he will find his stock manure a most valuable fertilizer. Its application increases fertility, adds to the humus content, and improves the physical condition of the soil.

When all is said and done, our only saviour in this thickly populated Island, is intensive farming, which is best achieved by "Mixed Farming," in other words, using every means at our disposal to obtain the maximum yield, and farm-yard manure can, and should play, no small part in this endeavour.

BANANAS AND ACKEES.

ANALYSES.

ONE of our members asked us to find out for him whether green bananas were especially rich in Iron. He also asked for the analysis of Ackees.

The following is the reply from the Deputy Island Chemist:—

EDITOR.

The iron content of ripe bananas is about 0.0006 per cent., that is only 6 parts per million. The iron content of green bananas has not been determined to my knowledge, but since the ash of green bananas is about the same as that in ripe bananas, and since the whole of the iron, being a mineral constituent, in the ripe banana must have been derived from that of the green banana it follows that the iron content of green bananas must be about the same as that in ripe bananas. There is a popular belief that since the juice of green bananas produces a dark stain that it is due to iron, but this is erroneous since the stain is entirely organic and not due to mineral constituents.

I give the analysis of green and ripe bananas and also the analysis of the arillus, edible portion, of the Akee, also known as Ackee.

				Green Banana.	Ripe Banana.	Akee.
Water	...	...	...	75.11	75.50	61.80
Protein	...	...	...	1.35	1.86	4.68
Fat	...	...	...	0.18	0.50	17.80
Carbohydrates	...	...	...	21.83	21.17	12.47
Crude Fibre	...	...	...	0.66	0.21	1.73
Ash	...	...	...	0.87	0.76	1.52

No information as to content of Vitamins.

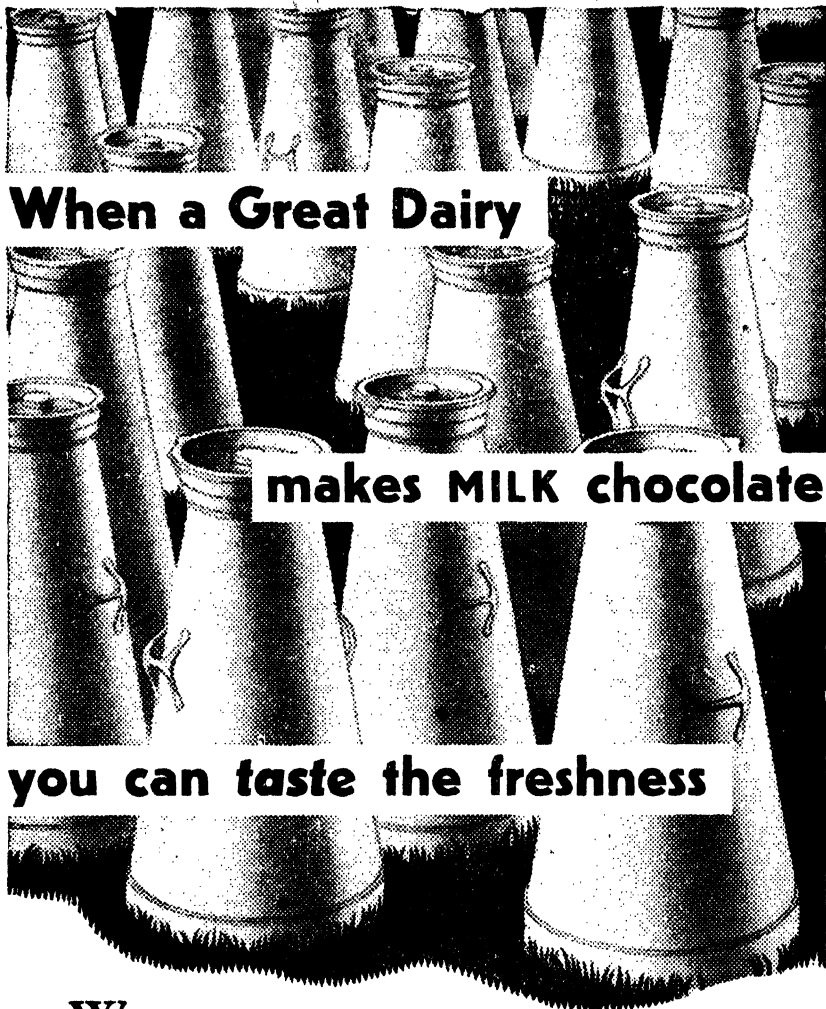
(Sgd.) W. L. BARRETT,
Deputy Island Chemist.

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RIGHT METHODS IN DAIRY PRACTICE**(Concluded).***STRAINING, COOLING, AND STORAGE OF MILK AND CREAM.**

Temperatures on the average farm present a difficult problem in summer, but good dairy management depends largely on their regulation and control. The removal of animal heat from milk and cream as soon as possible after milking or separating, followed by storage in cool surroundings, will greatly lengthen their useful life by delaying the growth and multiplication of bacteria. Together with straining, which serves to remove the visible dirt and so reduce the numbers of micro-organisms, control of temperature forms a method whereby the farmer can definitely increase the value of his product.

STRAINING.—Cow-hairs, flies, dust, and dung particles and other foreign matter carry with them enormous numbers of bacteria, and should be kept out of milk by every possible means, for no amount of straining can remove bacteria once they have become free in the milk. Should some visible dirt gain entrance, however, the straining of each cow's milk through a cotton-wool disc immediately after milking will minimise the damage that may otherwise be caused.

Straining should be done once only, and should take place before cooling or separating. The disc type strainer prescribed by the Dairy Regulations is preferable to any other, since each disc is discarded after use; provided that the metal parts are scrubbed and sterilised, there is no risk of recontaminating the milk as with a cloth which has not received thorough washing and boiling; also, the finer mesh of the wad will trap smaller particles than will a cloth.

Cooling.—Some form of cooling is necessary to counteract rapid bacterial development, and the most usual medium for the purpose is water. Adequate water is necessary for cooling, and if the supply is insufficiently cold an evaporating device or the use of ice may be required to bring the temperature of the cooled milk to 60 deg. F. or lower, and cream to 70 deg. F. or lower. If deep well water is available the maximum advantage in temperature can be obtained by pumping it direct to the cooler or trough when required. In the case of shallow well, surface, or tank water, some means of storing it, protected from the heat of the sun, must be devised if it is to be useful as a cooling agent.

An insulated tank, through which cold water flows and in which cream cans may be placed, is a fairly satisfactory arrangement for reducing the temperature steadily with constant stirring, which also aerates the cream; the water is then run to a trough for watering stock.

For cooling and aerating milk, the best type of cooler is the endless corrugated type, which can be used in conjunction with a water-bag evaporator (filled after each cooling in preparation for the next), or with a fixed tank to which water is pumped and flows through the cooler by gravity, or with a refrigerating unit using brine. Such a cooler, having wide corrugations, can be easily cleaned with a brush and has no awkward crevices. Porous cylindrical containers large enough to hold a single can, working on the evaporation principle, are being used

*By M. J. Griffiths, B.Sc. (Dairying) Dairy Research Laboratory (Dairy Branch).

"Queensland Agricultural Journal, 1st Oct., 1938."

in some districts successfully, and have the advantage of being transportable and economical of water.

Refrigerating is a sure and certain way of improving quality, for, although it actually does not kill harmful bacteria, it renders them dormant and unable to cause deterioration of milk or cream. Many farmers are coming to the conclusion that the improvement in grade resulting from refrigerating their product on the farm makes it financially economical. Very little bacterial growth takes place below 45 deg. F., but the growth rate of the common milk types increases steadily above this, up to around 100 deg. F., and is, of course, favoured by summer conditions. During sultry weather especially, extra care and precautions need to be taken with regard to cooling and cool storage of milk and cream.

Storage.—The Dairy Regulations provide for a suitable storage room for milk and cream, or for milk only, a well-covered ventilated stand will suffice. A clean wet bag wrapped around a can will assist cool storage by insulation and by evaporation. Direct summer sunshine in Queensland has tremendous heating power, and the proper protection of cream left adjacent to the road awaiting the carrier is, therefore, also important. Thick timber roofing over the cream stand affords greater protection than galvanised iron, which is not permitted under the Dairy Regulations.

Careful temperature control right from the start is the key to safeguarding quality in either milk or cream production, for whatever purpose they may be required.

WASHING OF DAIRY UTENSILS.

The general principles underlying the proper cleaning of all metal milk utensils are very simple, and once understood they can be adapted to the requirements of individual vessels and apparatus used in dairying. For this purpose it is essential to understand something of the nature and composition of milk and its products. Milk is a complex substance consisting of water, butterfat, lactose or milk sugar, casein, albumin, and mineral salts. Cream contains the same constituents in different proportions, so that the problem of cleaning is confined to finding effective methods for the complete removal of fats, sugar, proteins, and salts.

The sugar and mineral salts being mainly in solution, are almost entirely rinsed away in cold water, which will also remove a large part of the fat and proteins. Butterfat, however, occurs in the form of minute globules, and some of these adhere to the surface of milk vessels and require heat and emulsification before they can be washed off. Of the proteins, casein is in suspension in fresh milk (giving milk its white appearance), but it can be coagulated by acid or by rennet to form a solid curd, the hardness of which is increased by heating; albumin is in solution, but, like egg-white, it is readily and permanently solidified by the action of heat. Both these milk proteins possess considerable adhesive properties (casein is used commercially in the manufacture of paints and glues) and they will, *if the preliminary cold-water rinsing is omitted*, stick firmly to dairy utensils, where hot water washing and subsequent sterilisation will only harden them on the surface. Once fixed there, even in a very thin film, they form a protective layer where bacteria become lodged and breed, and where the sterilising heat cannot reach them, to the detriment of milk and cream quality. Similar protection is afforded by a layer of fat in the form of grease, which can be tested for by passing a finger over the surface of dairy equipment.

and which is caused by using insufficient hot water, water at too low a temperature, or the lack of some soap or soda compound to free the fat.

There are, then, three stages necessary to the thorough cleaning of dairy utensils, as distinct from the sterilising, which must follow in order to destroy the harmful bacteria. These three stages are as follows:—

- (1) *Cold Water Rinsing*.—Utensils should be well-rinsed as soon as possible after use. This is very important, for milk once allowed to dry is much harder to remove completely. Soaking in cold water for a reasonable time is advisable if washing is not to be done immediately—this will loosen all milk solids and facilitate washing.
- (2) *Hot Water and Soda*.—Washing soda, caustic soda, soap, or soap powder are suitable cleansers for farm use (besides many proprietary preparations sold under trade names). Care should be taken to avoid cleansers containing any gritty substance, for this will permanently damage the surface by scratching, and will rapidly remove tinning. The water should be really hot, and enough soap or soda should be used to emulsify the grease, so that no globules of fat can be seen floating on the surface of the water. A stiff brush should be used on each utensil and all loose parts such as taps and strainer discs should be dismantled for scrubbing.
- (3) *Hot Water Rinsing*.—A final rinse, using fresh hot water, is needed to remove the soda water before sterilising.

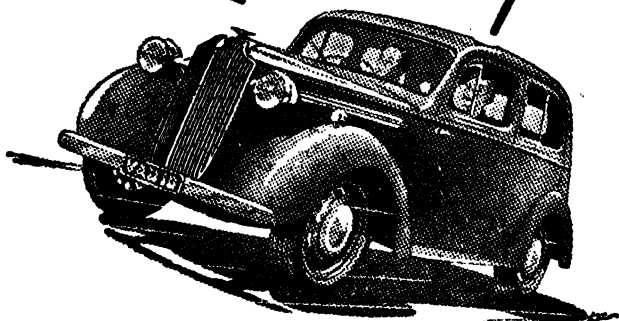
Milk utensils, if not properly cleaned and sterilised, are by far the most fruitful sources of contamination in the course of milking and handling milk and cream, and it should be remembered that both processes are equally essential, for satisfactory and complete sterilisation is not possible without first thoroughly cleansing along the right lines.

STERILISING DAIRY UTENSILS.

The use of clean sterilised equipment at every stage from the time that milk leaves the cow to the time of delivery to the customer or to the factory is considered the most vital single factor in lengthening the life of milk and cream. Some objections have been made to the Dairy Regulation dealing with the provision of a boiler on the farm to heat water for dairy use, but this is a minimum requirement in a country where warm or hot weather favours bacterial growth over nine months of the year. In Britain and other countries where dairies are required to be provided with a steam chest for sterilising milk utensils, this has resulted in a high standard, reliable product of good keeping quality. The initial expense is an investment, which has been proved countless times to be of the soundest. Farmers who have for years considered steam on the farm to be an extravagance have been completely converted, after installing a boiler, by the enormously improved grading and longer keeping of their product.

It is important to remember, however, firstly, that it is impossible to sterilise an inadequately cleaned vessel, whatever the method used, therefore the washing process must be thorough and complete before sterilising is attempted; secondly that a worn, or badly-constructed vessel cannot be either properly cleaned or sterilised. It is essential for good production that every utensil shall be free from rust, cracks, dents, open (that is unsoldered) seams—and for this reason kerosine tins are

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unsuitable—or other crevices, no matter how small, where traces of milk solids or moisture may collect and remain.

Chemicals.—Chemical sterilisers are on the market and there are some which are sold especially for dairy use. For milk utensils, however, chemicals are not, on the whole, recommended. Only a few are really suitable, if carefully used, and the risk of absorbed odours, of an error in quantity being made, or of some of the chemical gaining entrance to the milk or cream, are so great that heat sterilisation is considered generally more satisfactory and more efficient in every way.

Scalding.—“Scalding” is almost useless as a method of sterilising dairy utensils. If done with really boiling water, which is seldom achieved on the average farm, a proportion of the bacteria will be killed but it is not a sufficiently severe treatment. Water which has boiled but which has lost some of its heat through standing is not a sterilising agent.

Steaming.—Steam is the ideal sterilising medium, and applied for fifteen to twenty minutes after washing is completed it will kill the majority of bacteria on all ordinary dairy utensils.

A small square chest with steam inlet and a tightly-fitting door, capable of holding cans, buckets, milking machine and separator parts, is an ideal sterilising unit. A thermometer, fitted in the side, enables the farmer to make certain that the temperature is actually 212 deg. F. for the required time. A simpler and inexpensive home-made steam chest can be made from an ordinary galvanised iron dust bin, by perforating the bottom, or from a 40-gallon oil drum used in conjunction with a wooden lid made to fit over the dairy boiler. A number of holes are bored in the lid, over which the drum is placed, the ends having been carefully removed. One end forms the lid of the “chest,” into which utensils can be packed, and provided plenty of water is kept boiling—twenty to thirty minutes time should be allowed—steaming can be satisfactorily carried out. A piece of sacking placed over the top will assist in conserving the heat.

Boiling.—Boiling by complete immersion in water which is actively bubbling is the only effective and satisfactory alternative if steam is not available. This should be done for *not less than ten minutes*, and on no account should any attempt be made to dry utensils by wiping after sterilisation. If they are drained in a clean, airy place, preferably on a rack where air can circulate, the heat of boiling will dry off most of the surface moisture in a few minutes.

The application of a cloth or any handling of the inside of a vessel which has been sterilised will result in recontamination and should be guarded against. A wire basket can be constructed, with a little ingenuity, from fine mesh netting, in which small parts of utensils can be held for boiling and can be allowed to dry, without handling.

Sunlight is an aid to drying and sterilisation, and where there is reasonable freedom from dust, the storage of clean utensils in a sunny spot is all to the good.

FARM WATER SUPPLY.

It is extremely important that the supply of water on the dairy farm should be of pure quality and sufficient for requirements. Many farmers fail to realise that a contaminated water, if used for washing the cows' udders, the hands of the milker, or the utensils, may result in dangerous bacterial infection of the milk or cream. If cows and other stock are allowed access to foul or polluted water, not only will they wade collecting unclean bacteria on the coat and udder, but they

will drink it if a good fresh and pure supply is not available in adequate quantity, and in this way the spread of disease will be increased. The average milking cow is estimated to need 12-15 gallons of drinking water daily—this amount may not be sufficient in summer or in the case of heavy milkers—and experiments have proved that where cows have been allowed unlimited fresh drinking water, the milk yield has shown an increase.

Deep well water, provided it is not heavily mineralised, is the most satisfactory type of supply, for coming from far below the surface it is usually very pure and has the advantage of a low temperature all the year round. This is especially useful for cooling purposes in the dairy.

Shallow wells may yield a good quantity of water which is usually soft, but it is frequently impure owing to its proximity to the surface; surface rain water cannot receive sufficient filtration through the soil layers by the time it reaches the shallow well level to free it completely from contamination. Pollution from surface drainage is commonly found in shallow well water, but this does not mean that it cannot be made use of on the dairy farm. It does mean, however, that either chemical sterilisation or boiling must be resorted to in order to purify it.

Tank water is the most common form of supply on Queensland farms, and in comparatively dust-free areas this water may be of a high standard of purity, but this is not always so, for where much dust settles on roofs or after a dry spell, the water is bound to wash off a great deal of sediment and with it undesirable bacteria. This applies especially to tanks attached to the milking bails, for water collected from these roofs is liable to be contaminated with manure dust and particules blown from the stock yard, making it unsuitable without treatment for dairy purposes. The practice of rinsing clean cans on their return from the factory with such cold untreated water has been known to contaminate them seriously; instead they should be thoroughly scalded out with boiling water and allowed to drain dry.

Farm water treatment must be simple and cheap, and two methods are recommended.

(1) *Boiling*.—Boiling is the simplest method of purifying a suspected supply. If water is brought up to the boil (210 deg. to 212 deg. F.) before use, the bacterial causing ropiness and other faults will be destroyed, together with coliform (dung) types and disease organisms. Every farmer should provide himself with a dairy thermometer so that he can check temperatures, for the correct heating of water and utensils and cooling of milk and cream are the secret of successful dairy management.

(2) *Chlorination*.—Sterilisation of water by means of some chlorine compound is quite satisfactory provided the right amount is used. A quantity giving 1 part of chlorine in 2 million parts of water will sterilise any ordinary supply, leaving no excess. Where cloudiness or sediment are present, as may be the case if tanks are not cleaned, or with shallow well water, a larger amount of the compound may be needed than with a clear water, but care must be taken not to overdose with this powerful chemical since any excess will cause a bad taint in milk and cream. Addition of the chemical to water in the tank once a week, and after rain, should serve to keep the supply in good condition.

The periodic cleaning out of all water tanks is essential to maintaining a pure supply, and should not be neglected.

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REFINED SUGAR FOR THE MANUFACTURE OF PRESERVES AND/OR CONFECTIONERY.

AS a result of a resolution introduced by the Portland Branches Associated of this Society at the last Half-Yearly General meeting, and subsequent action by the Board of Management, satisfactory arrangements have been made for supplying manufactures of preserves with sugar at a reduced price.

The letter published below sets out the situation with regard to this matter.

Manufacturers of preserves who desire to obtain the concessions mentioned in the letter from the Sugar Manufacturers' Association should make application direct on a regular form which may be obtained from the Secretary of the Association, Barry Street, Kingston.

It is hoped that full use will be made of this concession to develop the Preserve Industry of the Colony.

The Society is grateful to the Sugar Manufacturers' Association for their willingness to co-operate with the Society in this important matter.

Editor.

THE LETTER.

WE are instructed by the Board of Directors to inform you that this Association, being desirous of assisting manufacturers to develop their Export business, will make a special rebate on Refined Sugar used for such purposes on the following terms:—

- (1) Each manufacturer is to satisfy us as to the quantity of Sugar used in each package of his particular product or products.
- (2) Each manufacturer is to prove to us the quantity exported by the production to us of signed Bills of Lading or other satisfactory proof that the quantity on which the rebate is claimed has been exported from the Island.
- (3) We shall then make a rebate which will reduce the pay for the Refined Sugar contained in the products so exported from £22 10s. 0d. per ton to a sum made up as follows:—
 - (a) The current F.O.B. value of Export Raw Sugar.
 - (b) The cost of refining i.e., £5 per ton.
 - (c) A sum to represent the Association's expenses consisting of Transport, Storage, Insurance, etc., which sum has been fixed for the present at £1 per ton, although actually this does not cover expenses in full.

Thus, if the F.O.B. value of Raw Sugar for Export is £9 0s. 0d. per ton, the rebate will reduce the price of Refined Sugar so used and accounted for to £15 0s. 0d. per ton.

The value of Raw Sugar F.O.B. Jamaica will be based on actual sales made during the crop and will be fixed monthly. The value for February is £9 0s. 0d. per ton, and on 1st March, or as soon as possible thereafter we will advise what the March value will be.

The rebate will be given on any Exports made subsequent to the 15th inst., on which date the Directors made their decision in the matter.

It is hoped that this concession, which is as far as can be gone, as you will observe, will help to develop an Export Trade in your product.

THE SUGAR MANUFACTURERS' ASSOCIATION

(of Jamaica) LTD.

17th February, 1939.

MANGO BUDDING.

A Freak.

By G. W. WRAY, *Agricultural Instructor.*

DURING the year 1938, the Jamaica Agricultural Society initiated a number of projects, one of which was a Bombay Mango Extension Campaign in Western St. Elizabeth. The plan of the Campaign was to top-work close upon 1,000 common mango trees and transform them into Bombay trees.

After careful inspection by Officers of the Society, a fairly extensive area was selected between Lacovia and Black River, comprising such districts as Shaws, Y.S., Middle Quarters, Whitehall, Hodges and Brompton and Fyffes Pen. In this part of the Parish, mango trees were numerous but they were of the ordinary hairy variety and could not be profitable to their owners. The establishing of the Bombay mango was therefore indicated as a means of giving a new industry to that section of St. Elizabeth.

By September, 1938, "cutting back" operations had been concluded and the "new growth" was ready for top-working. The work was in the hands of Instructor G. W. Wray assisted by Headman O. D. Marsh and later by Foreman John Scudamore. These Officers have all worked with commendable zeal throughout the different stages and have received the co-operation of owners of holdings and properties where this work was undertaken.

Fig. 1 gives a general idea of the uniform success of the scheme. It shows a lovely budded tree on the Y. S. property. All the foliage seen is that of the Bombay Mango on a stock that had been completely cut back. In the background are other examples of trees that have been successfully top-worked and now present luxuriant Bombay growth on the stocky remains of ordinary common mango trees.

And now we come to a most remarkable phenomenon that came to light a few weeks ago. On a tree at "Cherry Garden," Fyffes Pen, the property of Mr. A. E. Morrell, two buds instead of developing foliage as expected, developed into flower stalks straightway. Neither of these flower stalks had any foliage leaves when it first appeared. One eventually withered without setting any fruit at all. Fig. 2 shows the other which subsequently developed two tiny foliage leaves and actually set fruit, having now six small mangoes which appear to be developing. The whole flowering axis may be seen encircled in the picture.

This abnormality was first observed in January of this year. The tree had been only partially cut back at the special request of its owner, and the budding was done by Headman Marsh on the 6th September, 1938. It will be interesting to see whether the fruits will mature.

The peculiar behaviour of this bud was referred to the Government Botanist, Mr. L. N. H. Larter, who made the following observation:—

"I have not previously heard of such a case as this occurring in mangoes, but similar abnormalities have been reported in other fruit trees by Masters and Worsdell in their publications on Plant Teratology. In this case, it is probably that the bud selected already contained floral primordia.

An alternative explanation which is rather less probable is that, although originally vegetative, the buds used developed into the flower buds subsequently to budding; such a change might be caused by unfavourable conditions such as drought or disease. I remember reading of one case of budding in apple stock in which the bud shoot, after developing one or two leaves, metamorphosed into a rooting system."



Fig. 2.

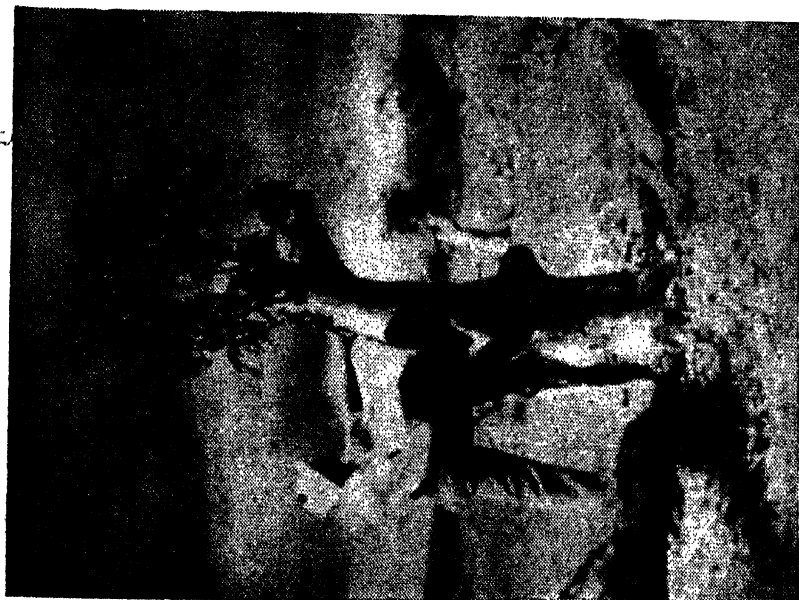


Fig. 1.

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PIONEER GROWING MASH
PIONEER DEVELOPING SCRATCH

From 4½ or 5 Months on

*For Egg
Production*

PIONEER LAYING MASH
PIONEER SENIOR SCRATCH

*For Table
Use Broilers
and C.pons*

Feed same as above but use **PIONEER BATTERY Chick Mash** in place of Pioneer Chick Mash and **PIONEER FATTENING MASH** in place of Pioneer Growing Mash and Pioneer Laying Mash

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Pigeons:

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THE HONEY BEE A DEPENDABLE POLLINATING AGENT.

By **HOLON HERON**, *Instructor in Bee Keeping.*

THE Honey bee is the only pollinating insect that can be propagated and controlled.

When it was first introduced into North America the Indians called it the "Whiteman's Fly."

In the United States of America there are about one million Bee-keepers with an output of about 100,000 tons or 200,000,000 pounds of honey.

At present there are approximately 100,000 colonies of bees in Jamaica. The average annual production of honey is about 2,000,000 pounds. The export trade values around £80,000 per annum.

The honey bee in Jamaica has an older history than the bee of the United States. This is evidenced by the older Honey and Beeswax Export Trade of the Island. Jamaica however, owes much to the States for many improvements along modern lines in her Beekeeping Industry.

Formerly man valued the honey bee only for the production of honey and beeswax but he has gradually learnt to appreciate the little worker as a pollinating agent.

Bees perform a very important part in helping to maintain our agriculture. With the spread of civilization, the general increase of population and agricultural expansion, vast areas of forest and swamp lands which supported useful species of pollinating insects, were destroyed, with the natural result of considerable reduction in their number, and in some instances extinction of the species. To right these conditions, the honey bee was provided, and more and more dependence is being placed on this pollinating insect.

In some species of plants, for example, the Pimento, the male and female flower are borne on separate trees. Consequently the pollen from the flowers on one tree has to be transported to the flowers on the tree of the other sex if berries are to be produced. In other species of plants the male and female flowers are distinct though they are borne on the same tree. A like cross-pollination though over a shorter distance has to be undertaken if fruiting is to take place.

It is in these circumstances that the honey bee gives its wonderful assistance to agricultural industry. Its work of pollination is carried out on what may be called the "single tract instance." If a bee starts working on Orange Blossoms it will continue its operations on Orange Blossoms as long as it can obtain nectar and pollen. Another bee from the same Colony may concentrate on Coconuts, to reach which, it will carefully avoid blossoms of other plants.

It is obvious that if the bee collected pollen from the flowers indiscriminately its work would be very much less effective and could not really be depended upon.

In the United States of America hundreds of colonies of bees are rented by orchardists for this service so that large crops may be secured.

The honey bee does not live from hand to mouth like its cousins the wasp and bumble bee, neither does it do its work in a harum-scarum manner like the butterfly which flits gaily along from one species of flower to another.

This habit of constancy goes a far way to aid man in his pursuit of the production of profitable crops, and it is for this service that it has been truly called "Man's Winged Ally."

HANOVER AGRICULTURAL SHOW.

THE Hanover Branches Associated sponsored an All-Island Agricultural Show, which was held on the 27th December, 1938. Two similar shows were previously held as far back as 1912 and 1929. Since this last one many local people are of opinion that there should be more frequency if Shows are to be the educative agency which they should be.

It must be admitted at the outset that this Show was held under auspices none too favourable. In the first place, it was a postponed Show. It should have been held on the 1st of August, 1938, but on account of drought and labour disturbances the Associated Branches at their June meeting decided on a postponement to December 27. Then again December is a most unsuitable month for a Show in this Parish for the reason that at that time agricultural products and live stock are about at their worst. There was no choice, however, having regard to the site for the Show.

As in the case of the two previous Shows, this was held on the spacious and beautiful Barracks Grounds at Lucea. The high and historic building, now housing the Elementary and Secondary Schools, provided all the space necessary for Agricultural Exhibits, Lunch Room, etc.

Exhibits both in Agricultural Products and Live Stock were considered good—exceedingly good—for the time of the year. The Gymkhana Events were well worth travelling the length of the Island to see. School and needlework exhibits were really very creditable.

An entirely new innovation was the installation of a megaphone and radiophone attachment which served to broadcast addresses, announcements and also music from hundreds of the latest and best records.

In the absence of His Excellency the Governor who was Chief Patron, the Show was formally opened by the Hon. Colonial Secretary.

The attendance was estimated at 4,000 persons who seemed thoroughly to have enjoyed the day's proceedings.

The Show was not as successful as it should be from a financial standpoint. The Committee however was benefitted considerably from this experience and at their next venture under similar circumstances should show a very much more satisfactory Balance Sheet. Nevertheless, it is gratifying to report that all prizes and expenses have been paid in full, and the Committee still holds a small balance in hand.

In closing this report, special mention must be made of the whole-hearted and devoted services of the following gentlemen:—J. W. Weller Esq., Hon. Secretary, who gave most painstaking and efficient service, Hon. G. W. Webster, President, Geo. Cox Esq., on whom fell the heavy responsibility of preparing the Grounds, W. H. DeLisser Esq., whose influence, enthusiasm and ability made the Riding and Gymkhana events the success they were, Rev. D. A. Rothnie, M.A., Veteran Treasurer of Hanover Shows and last but not least that noble band of Teachers, staunch supporters of the Society and efficient helpers in all its activities.

C. C. HASTINGS,
Agrl. Instructor.

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A FEW DON'TS IN COFFEE CULTIVATION.

By G. R. GRAHAM, Agricultural Instructor.

DON'T plant suckers from rat-cut berries. If plants from a recognised nursery are not available, make your own nursery. **Select a cool shady spot** and fork the soil well to make it loose. This makes transplanting easy. Select large well-formed "cherry-ripe" berries from a healthy heavy bearing tree, pulp and air-dry them and sow about one foot apart.

DON'T pull up suckers roughly with the hand when transplanting and leave all the fibre roots in the soil. Use a fork and loosen the soil well, then lift the plant carefully taking care not to damage any of the young roots.

DON'T transport your suckers over long distances with their roots exposed, as exposure to the air will dry the tender fibre roots. Put the suckers in bundles and wrap wet sacking, paper or banana trash around the roots to keep them cool and fresh and protect them from the air and sun.

DON'T keep the suckers exposed for any length of time before planting out. They should be put in the ground as soon as possible after being removed from the nursery.

DON'T take a crow-bar and bore a hole in the ground then stick the sucker in and stamp it down with your heel, when planting out. Dig a good hole 18" x 18" at least and fill it in, then open up the centre with the hands and plant the sucker carefully, making sure that the lateral roots are all spread out and not damaged or torn off. This will undoubtedly give a much stronger and quicker bearing tree.

DON'T plant your trees too close. Eight feet to ten feet apart is quite enough.

DON'T forget to put a good strong tall peg to mark each young plant. This will prevent the young plant being cut down when weeding is being done.

DON'T try to grow coffee in the lowlands without shade. You will not succeed. Coffee can be grown on the higher plains of the Blue Mountain range without shade, but not in the lower altitudes. For shade, select some quick-growing tree that will grow fairly tall and spreading yet will not crowd down on the coffee trees and exclude the sunlight altogether. A useful shade tree is one known locally as "Monkey Tamarind" or "Locust." Guango is also good but of slower growth. The Oil Nut or Castor Oil plant can be used to start the young plants but permanent shade must be provided in the meantime.

DON'T confuse over-crowding with proper shading. Shade trees should be regulated so as not to crowd the plants they shade in any way, and while keeping off the direct rays of the sun allow the free passage of light and air through the field.

KEEP A MILCH COW.

IN and out of season Farmers have been told of the value of a milch cow, and how essential it is for every one with his own holding to keep a good cow. Despite this continuous advice fewer and fewer cows are being kept.

There is no end to the advantages to the holding, to the cultivator and his family, of keeping a good milch cow.

The farm cannot be kept going without some form of animal manure: the cow supplies it.

Whether the cow be tied out, left to roam in a paddock or field, or be kept in a stall, she is doing her job by the farm.

In every case where settlers have bought plots of land and gone ahead with cultivation but omitted to keep animals, the lands have become unproductive in a very short time.

It must be kept in mind that where fields are rented, before these fields are taken up, the owners, in almost every case, have cows feeding on the land. As soon as the fields are given up, cows are put back to graze and it is in this way that the fertility is kept up.

In addition to keeping up the fertility of the farm, there is the milk from the cow, which is available in every form for the farmer and his family. In these days when we are all hearing so much about nutrition let us remember the part that the family milch cow can play in this important matter. Wherever a farmer keeps cows his children look healthy and thriving. Some of the healthiest and strongest people in Jamaica are penners and their sons. They work and live on the big properties, are in charge of the milch cows and have a regular supply of fresh milk.

Farmers argue that it is useless to keep a cow when they cannot sell the milk. Now this is not true for every district.

In Manchester just now there is more demand for butter than local makers can supply, and small farmers can get a penny-ha'-penny per quart for his milk, with the separated milk returned to him.

This is fairly good business, but very few farmers are in a position to take advantage of the situation. Those who kept milch cows have been persuaded to sell them; they did so willingly satisfying themselves with the excuse that there was no market for milk.

In fact, selling milk is only one way of disposing of this article. Every farmer knows how his fowls will fatten and lay when fed on separated milk; how pigs will grow faster and weight heavier, and in those cases where there is no market for milk farmers should still milk their cows and market the separated milk "on the hoof," that is, through pigs and poultry.

Much the same thing may be said about milch goats. They should be milked regularly and the milk used for the family and for feeding other animals.

The well-known settler's ideal of five acres and a cow has a lot to recommend it. Apart altogether from the acreage the farmer should not forget the cow.

Jamaica rightly has a reputation for animals—lands are suited for rearing them, and the people are naturally possessed of the knack of looking after them. These days we talk and think perpetually of crops, forgetting what a source of wealth and well-being we have in our animals, especially the cow.

A.T.

BANANA DEMONSTRATION PLOTS.

WE quote the following from a letter dated 6th February, 1939, from one of our members in Manchester.

"There is one point that has been definitely established here through the Leaf Spot Campaign, that is, that trees that have been treated with dusting and fertilizing, withstand the drought far better than those which have not so been treated. The contrast between the two halves of my field is very pronounced. The treated half is completely green while the untreated half is definitely reddish and brown with dry leaves."

VEGETABLE AND CORN GROWERS' ASSOCIATION, ST. ELIZABETH.

Report by Miss E. J. Dobson, Secretary,
Nightengale Grove Branch.

THE inaugural meeting for the formation of a Vegetable and Corn Growers' Association was held at Nightengale Grove on the 27th January, 1939.

The interest of agriculturists in this and surrounding localities was evinced in an attendance of fully 300 persons, among whom were representatives from the following Branches of the Jamaica Agricultural Society:—Springfield, Beersheba, New Road, Pisgah, Giddy Hall, Middle Quarters and Merrywood.

On the platform were:—Mr. R. G. Sinclair, President of the St. Elizabeth Branches Associated, in the chair, Hon. E. V. Allen, M.L.C., Mr. Whitbread of the Marketing Division, Mr. G. W. Wray, Agricultural Instructor, Messrs. D. Sangster, N. C. Lewis, J. Tomlinson and Miss Dobson.

Mr. Lewis explained the chief aim of the meeting. The great necessity for a buying centre for vegetables and corn in the area was forcibly brought out. Other economic crops having failed, Mr. Lewis said agriculturists had resorted to the production of these two commodities. He emphasized that the soils were specially suited to the growing of vegetables and Irish Potatoes, and the great need was **MARKETS**.

Mr. Whitbread expressed his sympathy with the situation, but said that until he had information as to what extent vegetables could be grown in the locality, he would not commit the Marketing Division by making any promise. He, however, volunteered to return to the district when along with the Instructor, Mr. Wray, he would visit the various holdings with a view of discussing the subject with individual growers.

He stressed that the growing of Vegetables was not easy as it might seem and that constant care and attention were necessary as well as a lot of hard work.

He explained the system on which depôts at Williamsfield and Brown's Town worked, and suggested that it might be possible to make a start with the system of a shed and trucks for the purchasing of the products.

Individuals were encouraged to ask questions, all of which Mr. Whitbread very patiently answered.

Mr. Sangster assured Mr. Whitbread of the co-operation of growers. He added that the chief problems were:—

Enough Lands for Cultivation;

What should be Grown;

Will Government provide the market.

Hon. E. V. Allen congratulated Mr. Lewis who was responsible for the movement. He emphasized the fact that much more practical knowledge of the use of fertilizers was necessary. This he said, should be demonstrated by the Agricultural Department. Lessons in the proper handling of crops in general and the establishment of Loan Banks were projects that were urgently needed.

He encouraged the growing of vegetables and said that Government should provide a buying centre.

The speakers were thanked for their very useful addresses and other business on the Agenda was taken.

LIVESTOCK IN THE WEST INDIES.

By J. W. HOWE, Dip. Ag., B.S.A., M.Sc., Headmaster Government Farm School, Superintendent Government Stock Farm.

(Continued.)

Identification system for Dairy Cattle.—In managing a large herd of dairy cattle some method must be used by which the animals can be easily identified. In cattle the two main systems used in marking cattle for identification purpose, are branding and ear-marking. Branding is done by means of a red hot iron applied to the jaw, shoulder, side or flank of the animal, and while it is a system which is effective as it marks the animal clearly, its use is not recommended for dairy cattle.

The ear marking system is by far the most convenient and does not mar the appearance of the animal. Ear marking may be done by means of a tag placed in the ear, or by means of a series of notches cut in the ear with a special punch. The use of tags in the ear has two disadvantages; the first is that when the animals are running in the bush the tag is often torn out, and the second is that the animal must be caught and held, in order to read the number on the tag, as the lettering on the tag is so small that it cannot be readily discerned at a distance of more than a few feet. The use of notches in the ear overcomes these difficulties, and is by far the most satisfactory system for general use in identifying dairy cattle.

The animals should be marked when they are young, as the notches grow larger as the animal develops, and can be read, and the identity of the animal determined without the animal being caught. The notches in the ear are always read facing the animal, and while there are several systems of numbering the animals in this way, the following is one which has been found satisfactory.

A System of Earmarking for Live Stock.

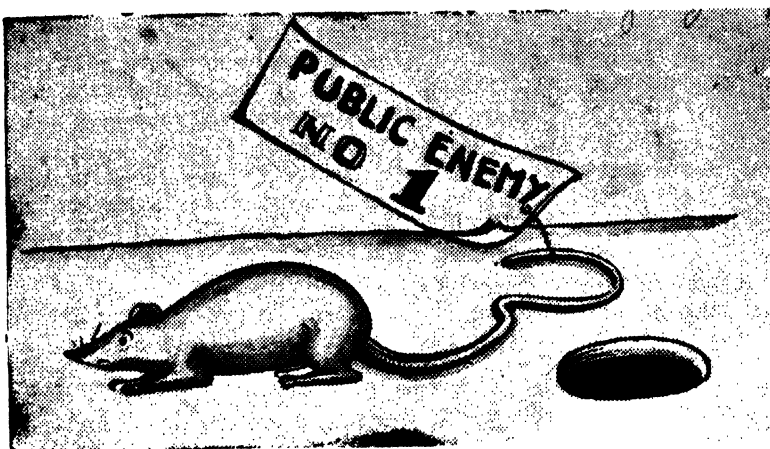


This method of marking cattle for identification purposes will take care of 149 different individuals. The units are indicated on the left ear, and the tens on the right ear of the animal. For example, No. 82 would consist of 1 notch in the tip of the left ear, and 2 notches on the top of the right ear of the animal; No. 94 would consist of 1 notch on the top, one notch at the end, and one notch at the bottom of the left ear, with one notch at the tip and one at the top of the right ear.

The identity of the animal can be determined from some distance away, which is a distinct advantage, especially in the case of cattle which are wild.

The notches are cut with a set of pincers for the purpose, which can be purchased from any live stock supply firm.

Dehorning.—Unless dairy cattle are purebred and are to be entered in the show ring, those which are horned should have their horns removed,



The Disastrous Rat!

Damage by Rats to Grain, Fruit, Crops, Poultry, Foodstuffs, Clothes, and even Furniture is so appalling and their numbers increase so rapidly that every means for their Complete Destruction should be followed with promptitude & regularity.

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You will find complete satisfaction.
This poison certainly does the trick
cleanly, surely & economically.

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preferably when calves. This is best done by rubbing a caustic de-horning paste into the area where the horn buttons appear, when the calf is about a week old. The calf afterwards should be either tied or placed in a stanchion for a time as it is liable to scratch the area and set up infection.

Damage from goring and wounding by the horns is often the means of heavy losses to the dairyman, and he will be more than repaid by removing the horns from his animals when they are young.

Castrating. Bulls which are not of desirable type for using for sires should be castrated, or sold as veal. In the Tropics the general grade of beef leaves much to be desired, and far too many animals of dairy type are used for beef. The beef from such animals is of poor texture, lacks the marbling of good, well feed beef, has a yellow fat, and lacks the flavour of the beef from a good type of beef animal.

Fattening tests show that it is a waste of time and money to try and make good beef from a dairy type of animal, and the sooner this point is kept in mind the sooner will the quality of beef in the West Indies improve.

The bull calves of dairy type which are not suitable for use as sires can be sold for veal. Although the dairyman usually wishes to get rid of his bull calves at as early an age as possible, in order to save on the amount of milk used, the best age for vealing a calf is from 8 to 10 weeks, when the animal weighs from 150 to 200 pounds.

Dipping.—In the Tropics, one of the diseases against which the man raising cattle has to guard is Tick Fever or Texas Fever (*piroplasmosis*). This disease is caused by the bite of a tick (*Margaropus annulatus*) which is found all through the West Indies, and which can only be eradicated by regular dipping of the cattle, in a solution which will kill the tick, before it becomes gorged with blood on the animal and drops off to start laying eggs.

Most of the dipping solutions in use to-day consist of arsenic, together with some material which will hold the arsenic in suspension and also prevent the harsh burning effect sometimes found, and aids in getting the arsenic to stick to the animal. Any good commercial dip can be used. The dip commonly used for cattle in Jamaica consists of the following mixture:—

Arsenite of Soda	..	2 pounds
Paranaph	..	3 pounds
Water	..	100 gallons

The paranaph should be mixed with the arsenite of soda, added to the water, and the whole thoroughly mixed.

The cattle should be dipped regularly every 10 days. In the case of the milking herd, dipping will cause a reduction in the milk flow for a few days, and for this reason it is advisable to divide the herd into lots of say one-third of the herd when dipping, and never to dip the whole herd at one time, but rather in relays.

Dipping tanks should be erected where there are more than 25 head of cattle kept. For a smaller number than 25 head, tick infestation can be kept down by regular spraying of the cattle, with a solution similar to that mentioned above.

Clipping.—Cattle with long hair suffer from the heat and are more susceptible to ticks, since the ticks can stay on the long hair more readily. For these reasons it is advisable that cattle be clipped at least

*twice per year. Clipping not only aids in improving the comfort of the animal, and reducing the possibility of tick fever, but it also improves the animal's appearance, as a well clipped animal always presents a more pleasing appearance than one which has a long shaggy coat.

For the small herd of cattle a hand power clipper can be used, but where there are a large number of animals in the herd, this method is slow, and a clipping machine powered by an engine is advocated.

Grooming.—In the majority of herds there is not enough attention paid to the grooming of the cattle. Grooming not only increases the comfort of the animal but improves the appearance and makes the animal much easier to handle. The use of a good strong dandy brush and a curry comb on a dairy cow, will more than pay for the time spent in grooming. The animal should be groomed at least once a day, and if the weather is wet and the pastures muddy, grooming should be done oftener. Grooming is especially necessary when cattle are being shown.

Shelter in the pasture.—Pasture for dairy cattle should be well provided with shade and shelter. The mango tree makes excellent shade in a pasture, and if properly handled will return a good cash crop each year. Trees in the pasture are a decided asset, and in a climate such as found in the Tropics provide shelter from sun and rain as well as providing a source of revenue. If it is not practical to have trees in the pasture, some provision in the form of a shed may be used for shelter. The construction need not be expensive, as a shed with a well-thatched roof, and open at the sides will serve the purpose.

Water in the pasture.—As the dairy cow in the Tropics drinks a surprisingly large amount of water daily, it is necessary that water be available for the herd in the pasture at all times. Tanks constructed of concrete or stone may be used to advantage, and the flow of water into them controlled by means of a regulating valve or ball-cock. The tanks should be cleaned out periodically, and white-washed within and without. Besides keeping the tanks clean, care must always be taken to have each tank stocked with small fish, known as ticky-tickies, or Barbados millions. Such fish resemble minnows and as they eat mosquito larvae, aid in preventing the mosquitoes from breeding, thereby reducing the possibility of malaria fever.

POULTRY NOTES.

FOWL LICE.

FOWL lice is well known as a major problem in most fowl yards. They infest the body of the fowls in myriads and eventually not only affect their health and well-being but become a nuisance to attendants.

As many as six different types of lice are to be found on a single farm.

Lice spend their entire life, from the egg to the adult stage on the body of the fowl. The eggs take about one week to hatch out and reach maturity in about two weeks.

They can be distinguished from other parasites on the bird's body by the fact that they have three pairs of legs and the body is divided into three sections, the head, the thorax, and the abdomen. They are about $\frac{3}{16}$ of an inch long and are of a yellow or grayish colour, sometimes ornamented with dark stripes. They are never wholly dark, brown or red. Parasites of these colours may be either fleas, mites, or ticks but not lice.

Nicotine Sulphate (Black leaf 40) has been found to be a safe cure for lice. This should be painted on all roosts and on the bottoms of nests boxes. The undiluted Black leaf 40 is rubbed on with a brush, or swab, late in the day just before the birds go to roost, and the treatment is repeated two or three times.

Spraying runs and boxes will *not* control lice.

Boxes filled with earth into which has been put Sodium Fluoride or Tobacco dust is a great help. The proportion of this mixture is at the rate of one part of either the tobacco dust or the sodium Fluoride to about five parts of finely sifted earth. Some of this dust may also be placed in the holes where fowls delight to ruffle themselves. All "setting" hens should be thoroughly dusted with Keatings prior to being put to "set"; and all new birds brought into the flock should be examined for lice and similarly treated.

[A.T.]

MARKETING NOTES.

THE prices offered for Coffee have advanced by 3/- in the 100 lb. for Good Ordinary, Fine Ordinary and Manchester B. grades. In the case of Manchester A, 2/- extra is quoted. Prices for most of the other commodities are more or less steady.

Present quotations are as follows:—

<i>Annatto</i>	... Well cured, prime, red seed	... 14/- per 100 lb.
<i>Coffee</i>	... Good Ordinary	... 27/- " "
	... Fine Ordinary	... 29/- " "
	... Manchester—B	... 29/- " "
	... Manchester—A	... 31/- " "
<i>Cocoa</i>	... Ordinary	... 16/- " "
	... Estates Fertd.	... 16/- " "
<i>Goat Skins</i>	... Well cured and free from holes	... 1/- per lb.
<i>Honey</i>	... Water White	... 2/- per gall.
	... Pale Amber	... 1/6d. " "
	... Light Amber	... 1/3d. " "
	... Dark Amber	... 1/- " "
<i>Kolanuts</i>	... Well cured, sound quality	12/- per 100 lb.
<i>Lime Juice</i>	... Good, fresh, green, top-pulp	... 1/- per gall.
<i>Orange Oil</i>	... New Crop—Sound Quality	
	... —Sweet and Bitter	... 4/3d. per lb.
<i>Sarsaparilla</i>	... Well cured, red roots	... 40/- per 100 lb.
<i>Wax</i>	... Pure clear quality	... 10d. per 100 lb.

SUMMER SALAD.

Cut radishes and green pepper in water thin slices, put in ice water and chill thoroughly. Drain well. Serve on crisp watercress with French dressing to which a little grated onion has been added.

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1—LB and ½—LB

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KINGSTON.

STUD SERVICE—GROVE PLACE.

IN the advertisement for stud services at the Government Farm, Grove Place, it will be seen that substantial reductions have been made for Mares and Jennets to the imported Jack. A welcome reduction has also been made in the service fees for cows.

It is hoped that breeders will take advantage of these facilities.

AUTHORIZED PERSONS.

Return of arrests for quarter ended 31st December, 1938.

St. Thomas	...	...	...	2
St. Mary	...	...	...	6
St. Ann	...	...	...	10
Trelawny	...	...	...	1
St. James	...	...	...	7
Hanover	...	...	...	2
Westmoreland	...	...	...	1
St. Elizabeth	...	...	...	2
Manchester	...	...	...	9
Clarendon	...	...	...	18
St. Catherine	...	...	...	1

BRANCH NOTES.

All Reports received are acknowledged in this section of the Journal. Notes intended for publication should be written *on one side of the paper only*. [Ed.]

CLARENDON: Rock, Osborne Store P.O.—Meeting held 18.12.38. Mr. A. N. Blair, 2nd V.P., presided. Present: Instructor Virtue, Messrs. H. D. Coleman, G. S. F. Manning, acting Secretary, 120 members and 200 visitors. The members bade farewell to Mr. H. D. Thomas, retiring Secretary, who will be leaving for Mt. Horeb School. An Address and Souvenir were presented to him. Instructor Virtue paid tribute to his work. Addresses were given by Messrs. A. N. Blair, C. W. Manning, W. M. Patterson, D. E. Blair, H. S. Morgan and G. S. F. Manning. Refreshments were served, after which the meeting adjourned.

GLADSTONE S. F. MANNING,
Acting Secretary.

Beckford Kraal, Beckford Kraal P.O.—Meeting held 5.12.38. Present: President, Mr. A. J. Smith, 1st V.P., Mr. C. Douglas, 6 Authorized Persons, 15 members and 4 visitors. Correspondence was read. Reports of delegates to the Half-Yearly meeting and A.P. were read. The roll call showed 15 members and 4 visitors. An interesting meeting was terminated by "The King."

J. A. SWEENEY,
Secretary.

MANCHESTER: New Green, Mandeville P.O.—Meeting held 1.12.38. Present: 7 members and Mr. H. A. Darby, Instructor. A committee was formed to go into the details of the proposed local show. Mr. H. E. Gayle was asked to be delegate to the Half-Yearly meeting to be held in January 1939. The members were encouraged to attend the M.B.A. meeting in Mandeville. The Instructor gave a short and pithy talk about the advantages of feeding cattle with the aid of a silo. The meeting terminated.

H. E. GAYLE,
Secretary.

PORTLAND: Balcarres, Balcarres P.O.—Meeting held 28.12.38. Present: Mr. Joseph O. Baugh, 1st V.P., 9 other members, 10 visitors and the Secretary, David E. Nesbitt. A letter was received from the Parochial Board re the Ebo Field-Logamond Road. Three Authorized Persons reported "all correct." Mr. J. A. Sullivan moved a resolution relative to increased pay per diem to Authorized Persons. The meeting terminated.

DAVID E. NESBITT,
Secretary.

Bangor Ridge, Bangor Ridge P.O.—Meeting held 1.12.38. Present: Mr. L. E. Dillon, President, 12 other members, about 20 visitors, and the Secretary, Mr. G. A. Barnes. Instructor Wilmot visited the district. He carried out some fertilizing demonstrations on holdings. Among the matters dealt with on the agenda were: (a) appointment of an A.P.; (b) Food Handlers' Examination; (c) appointment of delegate to meeting of Portland Branches Associated; (d) appointment of delegate to Half-Yearly General meeting; (e) reconstruction of road from Bangor Ridge to Berwick Spring; (f) water supply for school children; (g) Social for next meeting. After minor matters were dealt with and the roll call taken, the singing of the National Anthem terminated the meeting.

GEORGE A. BARNES,
Secretary.

Craigmill: Buff Bay P.O.—Meeting held 6.12.38. Present: Messrs. L. T. Lawrence, President; A. A. Palmer and D. E. Baugh, 2nd and 3rd V.-Presidents, respectively; A. T. Wilmot, Instructor, 8 other members, several visitors and the Secretary, Rev. T. Lawrence. Correspondence was read and discussed. The Authorized Persons reported. The Secretary gave a full report of the Harvest Festival held by the Branch recently. The Instructor in his remarks referred to the small demand for Citrus fruits, and advised the formation of a Planters' Association. During the course of his address, a surprise visit was paid by Messrs. Hewett, of the Education Department, O. P. Martin, Supervisor of School Gardens, and A. P. Hanson, Supervisor of Instructors. Helpful and encouraging remarks were made by each of these visitors. A few other matters were dealt with and the meeting terminated with the singing of the National Anthem.

(REV.) T. LAWRENCE,
Secretary.

ST. ANN: Sturge Town, Sturge Town P.O.—Meeting held 25.11.38. Present: 11 members, Instructor Robotham, President, Mr. C. R. Moss; Vice-Presidents, Messrs. L. Ingram, A. E. Palmer, H. Hall, and Asst. Secretary, L. R. Moss. The following matters were dealt with: (a) The Telephone for Sturge Town from Brown's Town; (b) the water tank for Shawberry; (c) report of the delegates to the Half-Yearly meeting of the Branches Associated. Mr. C. R. Moss gave a very good report of the meeting at Bamboo, for which he was very heartily thanked by the meeting. The Instructor addressed the meeting, taking as his subject the burning of bush. He was thanked for his address. Mr. Harold, the newly appointed Authorized Person, reported to the meeting. Other Authorized Persons reported "all correct." The meeting was brought to a close by the singing of the National Anthem.

L. R. MOSS, ...
Asst. Secretary.

ST. CATHERINE: Bellas Gate, Bellas Gate P.O.—Meeting held 16.11.38. Present: Mr. G. E. Marklaud, President, and other officers; Messrs. C. L. Byles, Leslie Cawley, T. J. Cawley and the Hon. Member for the Parish. A welcome was extended the visitors by the President. An address embodying the needs of the district was read and presented to them. The Hon. Member spoke fully on Land Settlement, and promised his help towards obtaining a Parochial Dispensary and Telephone Station for the district. Mr. L. Cawley told of his efforts to have the Blue Hole Road surveyed. Mr. T. J. Cawley encouraged the Branch to keep up its membership. He stressed the value of co-operation. Instructor Byles also stressed the necessity for co-operation and thanked the visitors. The meeting ended with the singing of the National Anthem.

(MISS) G. M. FLETCHER,
Secretary.

Time and Patience: Linstead P.O.—Meeting held 24.11.38. Officers elected: President, Mr. W. Bissick; 1st V.-P., Mr. J. McCaw; 2nd V.-P., Mr. E. Rhoden; 3rd V.-P., Mr. T. McCaw; Secretary, Miss A. M. Boyd; Asst. Secretary, Miss E.

Edwards; and Treasurer, Miss I. Chin. Executive Committee: Miss Olive McNeil, Mesdames E. Edwards, E. D. Johnson, Messrs. Altin Edwards, A. Rhoden, J. Johnson, J. Edwards, F. Aldred and C. McNeil. Instructor Byles reminded the members of the aims of the Society. He gave a very interesting and helpful address on the rearing of poultry. The meeting stood adjourned until the 13th December.

(Miss) A. M. BOYD,
Secretary.

Phillipsburgh: Redwood P.O.—Meeting held 11.11.38. Mr. P. N. Nelson, Vice-President, presided. The following matters were dealt with: (a) Upland rice. The Secretary presented this for distribution. It was decided that each person obtaining rice for planting should contribute one penny. (b) Outing: Mr. D. Russell, who is in charge of the arrangements, promised to report at the next Executive meeting. (c) Mr. D. Russell moved and handed in resolution concerning the Ragsville-Buck Up Road. This was accepted by the meeting. (d) A discussion took place re the growing of tobacco. It was decided to write to the Parochial Board re the condition of the Phillipsburgh-Guys Hill Road. The meeting closed with the singing of the National Anthem.

(Miss) N. A. HARRIS,
Secretary.

ST. ELIZABETH: Malvern, Malvern P.O.—Meeting held 25.11.38. Present: Mr. T. M. Fagan, 2nd Vice-President, in the Chair, 18 members and the Secretary. The meeting opened with prayer. Correspondence with regard to the Half-Yearly General Meeting was read, and Mr. A. R. Knight was elected delegate to represent the Branch. A helpful and very profitable talk on "Corn Growing" was given by Mr. A. R. Knight who offered to continue the lecture at the next meeting. Matters relative to the White Yam Competition were discussed, and the meeting terminated with the singing of the National Anthem.

(Miss) E. I. BLAKE,
Secretary.

Siloah: Siloah P.O.—Meeting held 22.12.38. Mr. T. B. Logan, 1st V.P., presided. He welcomed Instructor Kelly, 12 members and 4 visitors. The House was informed that a boar is available from the Nain Branch. The Asst. Secretary was instructed to write for particulars, also to communicate with Supervisor Bacque on the subject. The Instructor gave a very interesting address. He chose as his subject "Food." He was heartily thanked. The Secretary tendered her resignation, as she intends leaving the district. This was received with regret. The singing of the National Anthem closed the meeting.

(Miss) E. T. PENNICOTT,
Secretary.

Springfield: Springfield P.O.—Meeting held 2.12.38. A telegram from the Instructor, stating his inability to attend, was read. Three delegates to Newmarket for the Half-Yearly meeting of the Branches Associated, were present, and reported. Members asked that they be allowed the services of the Montgomery-Jersey Bull. It was decided (1) that a resolution recommending a Buying Depot for Springfield be sent to the Half-Yearly General Meeting; (2) that this Branch invite Mr. Thelwell, General Secretary, to one of its meetings. Re the matter of the Road Committee: it was suggested that all members of this Branch help Mr. Mair, who is a member of this Committee, by reporting to him any road in need of repairs. The National Anthem was sung and the meeting closed.

U. KITSON-WALTERS,
Secretary.

ST. JAMES: Maldon, Point P.O.—Meeting held 9.12.38. Present: Rev. C. G. Whyhie, President; Messrs. A. J. Linton, 1st V.P., S. A. Taylor, 2nd V.P., J. W. Chisholm, Secretary, 12 other members, 20 visitors and C. A. Sheppy, Asst. Secretary. The meeting opened with the singing of the first verse of the hymn "We plough the fields and scatter." The President welcomed the members and visitors. A presentation to Mr. Chisholm, Secretary of the Branch for more than a quarter of a century, took precedence among the items on the agenda. There was a programme of songs and recitations. An address was read and presented by Mr. C. A. Sheppy. A purse was presented by Mr. A. J. Linton. New members: 14 members were added to the roll. Authorized Persons present reported "all correct." The Asst. Secretary

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HARBOUR STREET

KINGSTON

JAMAICA.

was asked to invite an Officer of the Police to instruct Authorized Persons at the next meeting. Messrs. E. A. Rockhead, D. N. Slack, J. W. Chisholm, S. A. Taylor, A. J. Linson, H. Peterkin and C. A. Sheppy formed a deputation to attend the meeting to be held in Montego Bay by the Hon. A. B. Lowe, and which should deal chiefly with Leaf Spot Disease. After some very encouraging remarks by the President, the meeting adjourned with the singing of the National Anthem.

C. A. SHEPPY,
Asst. Secretary.

Cambridge, Cambridge P.O.—Meeting held 10.12.38. There were 25 members present, and visitors. At the request of the President, Mr. C. V. Gourzong, a prayer was offered by Rev. C. A. Wilson, 1st V.-P. The 1st V.-P. promised to carry through certain plans agreed upon, for the increase of the Branch's membership. A discussion re exhibits to the Hanover Agricultural Show, was entered into. The 1st V.-P. moved that the Branch ask the St. James Branches Associated to make arrangements for the holding of bi-annual county agricultural shows, the first to be held at Montpelier. This was agreed to. There was a discussion on the incidence of the "Leaf Spot" Disease. The 1st V.-P. told of the efforts now afoot by the Government and Banana Companies for combatting the disease. The planting of Cassava on a large scale was discussed. It was finally decided to acquaint the Instructor of the plan, and to have his advice as to special varieties available. The National Anthem was sung, and the meeting terminated.

W. N. REID,
Secretary.

Springfield: Welcome Hall P.O.—Meeting held 29.11.38. Rev. D. A. Morgan presided. Present: 18 members, and a few visitors. The President stressed the seriousness of the incidence of Leaf Spot Disease in the Island. Correspondence was read and dealt with. The Branch was informed that the Parent Society was making arrangements for the Branch to have a Saanen buck. The question of increasing the membership of the Branch was discussed. A resolution was passed that a mass of increasing the membership of the Society. Mr. Durie introduced the matter of meeting be called for 20th December to impress on the community the advisability the stealing of bananas in the Hampton district. The Secretary was instructed to communicate with the Police authorities. An interesting discussion took place on the price received by the smaller cane farmers for their sugar. The meeting adjourned.

I. E. R. GREEN,
Secretary.

ST. MARY: Mt. Joseph, Enfield P.O.—Meeting held 25.11.38. Mr. D. A. McNichol presided. Messrs. D. A. Jones, Instructor, and E. Tomlinson, Plant Disease Inspector, were present and carried out demonstrations in Spraying, Budding, and Manuring. The Secretary expressed the satisfaction of the community with the working of the recently procured "Mtoto Coffee Pulper." Correspondence re the Half-Yearly General meeting and the Annual General meeting at Highgate, was read. Authorized Persons reported a case of attempted arrest. Instructor Jones gave an address on Manuring, Soil Testing and Land Settlement. A Resolution was passed re Road Improvement, and another, requesting Government to protect Peas and Citrus growers. There were 34 members and 5 visitors present. The singing of "The King" brought a very profitable meeting to a close.

E. V. WEBBER,
Secretary.

ST. THOMAS: Pear Tree River, Port Morant P.O.—Meeting held 24.10.38. Present: Mrs. E. Beckford, President; Mr. U. A. McLaren, Instructor, and 8 other members. The following matters were dealt with: Signboards, Land Settlement Scheme, and Ovel Spring Water Supply. The Secretary was directed to write Mr. Halliburton, Asst. Superintendent of Parochial Board, Port Morant, re the signboards and water supply. Correspondence was read and dealt with. The Instructor spoke on Leaf Spot Disease. This he did in a very interesting manner, showing specimens of diseased leaves. He encouraged the cultivation of more ground provisions. The meeting stood adjourned.

V. RALPH McLEAN,
Secretary.

Hagley Gap: Hagley Gap P.O.—Meeting held 30.12.38. Present: 18 members, including the President, Mr. J. N. Gordon. A discussion took place in connection with Land Settlement Scheme. The delegates to the meeting of the Associated Branches at Morant Bay gave in their report. Mr. Astley Henderson was elected

delegate to the Half-Yearly General Meeting. Minor matters were dealt with, and the meeting terminated with the singing of the National Anthem.

W. N. EDWARDS,
Acting Secretary.

Whitehorses: Whitehorses P.O.—Meeting held 18.11.38. There was a very good attendance. Mr. S. O. Dalton presided. Correspondence was dealt with. Delegates for the meeting of the Associated Branches at Morant Bay were appointed as follows: Messrs. S. O. Dalton, R. J. Kelly and A. V. Hague. A resolution re Water Supply was sent to the Secretary of the Associated Branches. A petition asking for certain properties to be secured for Land Settlement was submitted. The National Anthem was sung, and the meeting stood adjourned.

A. V. HAGUE,
Secretary.

Woburn Lawn: Hagley Gap P.O.—Meeting held 9.12.38. Among those present were Instructor McLaren and Rev. C. Emanuel. There were 20 members in attendance. Mr. McLaren discussed the business of the Associated Branches of the Parish which had met in Morant Bay, and gave some useful instructions re the working of the newly affiliated Branch. Rev. Emanuel addressed the meeting. A delegate for the Half-Yearly General Meeting was elected. The meeting adjourned with the singing of "the King."

(Mrs.) A. L. MORGAN,
Secretary.

TRELAWNY: Sawyers, Sawyers P.O.—Meeting held 7.11.38. Present: Messrs D. J. Scott, President, E. N. Johnson, 1st V.-P., L. A. Brown, Secretary, J. R. Scott, Treasurer, and a large turn-out of members and visitors. Discussion on the outing to Grove Place on the 29th November, took place. Delegates were elected to attend the annual meeting of the Trelawny Branches Associated. A resolution was prepared. It was decided that the amount of Five Shillings be given as a donation to help in the repairs of the school room where the meetings of the Branch are held. The social side of the meeting took the form of a debate. The positive side was that the pig was more beneficial to the small agriculturist than the goat. The meeting was terminated by the singing of "the King."

L. A. BROWN,
Secretary.

Spring Garden—Rock Spring: Albert Town P.O.—Meeting held 8.12.38. Present, Messrs. F. W. Kelly, Instructor, F. A. Hart, President, and 12 members. The following matters were dealt with: (a) Land Settlement Schemes; (b) Post Office. The President, Mr. Hart, gave his farewell address. The members thanked him very much for his services and wished him success and prosperity. The Instructor addressed the meeting. A very enjoyable meeting was adjourned after the singing of the National Anthem.

L. C. COY,
Secretary.

WESTMORELAND: Grange Hill, Grange Hill P.O.—Meeting held 15.11.38. Present: Mr. C. C. Campbell, President; Rev. E. J. Caolsingh, 1st V.-P., Instructor Shirley, Mr. P. St. L. Bacquie, Supervisor of Instructors, Mr. O. P. Martin, Inspector of School Gardens, and 30 members. The Instructor made useful announcements. The Land Settlement Scheme was fully discussed. A resolution on the matter was passed to be sent to Government through the Parent Society. Both Supervisors gave encouraging and inspiring addresses, for which they were heartily thanked. The meeting closed with the singing of the National Anthem.

(Miss) E. M. SEGRE,
Secretary.

Lower Beeston Spring: Beeston Spring P.O.—Meeting held 6.12.38. Present: the President, Rev. S. J. Swaby, the Secretary, Mr. C. N. Guy, 8 other members and 2 visitors. Mr. Wray, the Instructor, addressed the meeting. He dealt in a masterly manner with the Land Settlement Scheme, and answered questions pleasingly. He encouraged the buying of the lands. He dealt with "Leaf Spot Disease," and told that his Department is doing its best to combat this menace.

C. N. GUY,
Secretary.

OTHER REPORTS RECEIVED.

Branch and Secretary.	Date of Meeting.	Attendance.	Business.
<i>Clarendon</i> -- Sunbury (N. Knight)	20. 12. 38	12	Report of delegate to Meeting of Clarendon Branches Assoc. Road. Minor matters.
Rock (H. D. Thomas)	23. 11. 38	46	Address by Instructor Virtue. Report of delegate to meeting of C.B.A.
<i>Hanover</i> -- Sandy Bay (J. B. Lawrence)	6. 12. 38	26	Election of delegate to half-yearly General Meeting. Report of delegate to meeting of Hanover Branches Assoc. Land Settlement Scheme. Show. Address by Instructor Hastings.
<i>Manchester</i> -- Old England (C. P. Watson)	15. 11. 38	27	Road. Half-yearly General Meeting. Correspondence. Address by Instructor Darby.
<i>Portland</i> - Bybrook (Miss I. M. Facey)	8. 12. 38	Over 14	Address by Instructor Wilmot. Election of delegate to Half-yearly General Meeting.
Rock Hall (E. V. Metcalfe Vaughan)	22. 11. 38	11	Road. Agricultural Headman. Rat killing Campaign. Land Settlement. Correspondence. Holdings Improvement Competition. Election of delegates to meeting of Portland Branches Assoc. Roads.
Mahoe (J. O. Grant)	26. 12. 38	15	Correspondence. Report of A.P. Address by the Secretary. Land Settlement.
<i>St. Andrew</i> -- Content Gap (F. A. Wilson)	19. 11. 38	19	Juvenile Pot. Soci. I. District nurse. Land Settlement. Correspondence.
<i>St. Catherine</i> -- Morris Hall (T. E. Lawrence)	2. 12. 38	50	Report of delegate to meeting of St. Catherine Branches Assoc. Election of delegate to Half-yearly General Meeting.
Princessfield (P. G. C. Graham)	28. 11. 38	..	Road. Reports of Authorized Persons, and delegate to meeting of St. Catherine Branches Assoc.
<i>St. Elizabeth</i> -- Nightingale Grove (Miss E. J. Dobson)	2. 12. 38	Over 25	Address by the President. Tank. Bull. Ram. Report of delegate to meeting of St. Elizabeth Branches Assoc. Vegetable Growers' Association. District Nurse. Road.
Kilmarnock (J. E. Monteith)	26. 12. 38	12	Report of A. P. Road. Land Settlement.
Southfield (J. J. Miller)	16. 12. 38	..	Tomato Growing. Minor matters.

OTHER REPORTS RECEIVED, *Contd.*

Branch and Secretary.	Date of Meeting.	Attendance.	Business.
<i>St. Mary—</i> Carron Hall (Miss I. Campbell)	..	13	Ram. Road. Spring. Half-yearly General Meeting.
Epsom (F. A. Edwards)	7.12.38	..	Ram. Election of delegate to Half-yearly General Meeting.
Long Road (K. M. Hird)	19.12.38	22	Address by Instructor. Report of A.P. Post Office. Half-Yearly General Meeting.
<i>St. Thomas—</i> Pear Tree River (V. R. McLean)	21.11.38	6	Leaf Spot Disease. Correspondence. School. Report of A. P.
Hagley Gap (Miss B. Singleton)	25.11.38	Over 14	Correspondence. District nurse. Reports of Authorized Persons. Election of delegates to the meeting of the St. Thomas Branches Assoc.
<i>Westmoreland—</i> Caledonia (Miss I. V. McPherson)	22.11.38	14	Water supply. Address by Instructor Shirley. Meeting of the Westmoreland Branches Assoc.
Porter's Mtn. (D. F. Bowen)	21.11.38	27	Holdings Improvement Competition. Correspondence Report of A. P. Dental Clinic. Minor matters.

JUVENILE BRANCHES.

Hastings: Meeting held 6.12.38. Present: Cecil Holness, President, the Secretary, the Teacher, Instructor Kelly and 20 other members. The President gave a report of cabbage seeds that had been sown in the school garden. The Instructor instructed members how to cultivate cabbage. Members visited the Banana Plot. The meeting adjourned.

DERMOT BECKFORD,
Secretary.

The York Street Branch held a show on 8.12.38. Inspiring and appreciative addresses were delivered by the Hon. E. A. McNeill, M.L.C.; Messrs. T. J. Cawley, M.P.B. and Member of the Board of Management, J.A.S.; L. E. Cawley, M.P.B.; R. C. Somerville, Produce Inspector; and O. P. Martin, Supervisor of Agricultural Training. Messages were read from Hon. Capt. H. S. McGrath, Custos of the Parish and Patron of the Show; Hon. B. H. Easter, C.B.E., Director of Education; Hon. C. A. Little, M.L.C.; and J. J. Mills, Esq., of Mico College. Messrs. T. J. and L. E. Cawley and R. C. Somerville judged the agricultural products and livestock; while the Misses Campbell, Orr and Richards judged the fancy work exhibited by the old scholars of the School. All exhibits were of a very high standard.

The first annual prize-giving function of the Cairn Curran Branch was held on 9.12.38. There were many members present. Mr. E. H. Grant, Teacher of the Caledonia School, presided. Addresses were given by Hon. B. H. Easter, Director of Education; Hon. M. H. Segré, M.L.C.; Messrs. O. P. Martin and P. St. L. Bacquie. The adult Branch contributed towards the fund for prizes. The function proved very successful.

VIVIANNE CUNNINGHAM,
Secretary.

GOVERNMENT STUD FARM GROVE PLACE.

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GUERNSEY:
Hope Foremost 5th.

MONTGOMERY-GUERNSEY:
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FEE. 6/- per Cow, with one month's free pasturage—after that 4/- per month

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Imported Berkshire Boar, COPPID SWEEPING CHARLIE.
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FEE. 5/- per Sow with three days' free keep; after that, sixpence per day for feed and keep.

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FEE. £5 5/- for Thoroughbreds and £2 for ordinary mares. One month's free pasturage; after that 8/- per month per head.

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FEE. 10/- per mare, or joint. Pasturage conditions as for the Stallion.

All Service Fees are payable in advance. Animals must be free from contagious and other diseases, and be clean of ticks.

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THE JOURNAL

OF THE

Jamaica Agricultural Society.

The more people do the more they can do; he who does nothing renders himself incapable of doing anything; while we are executing one work we are preparing ourselves for undertaking another.

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MARCH, 1939.

No 3.

BOARD OF MANAGEMENT.

THE regular monthly meeting of the Board of Management of the Jamaica Agricultural Society was held at the Offices of the Society, 10-12 North Parade, Kingston, on Wednesday, the 1st February, 1939, at 11 30 a.m. There were present: Hon. George Seymour Seymour, O.B.E., 1st Vice-President, presiding, Rev. W. J. Thompson and Mr U Theo. McKay, Second and Third Vice-Presidents, respectively; Hon. G. A. Jones, C.M.G., Director of Agriculture (*ex-officio*), Hon. C. A. Little, Hon. and Rev. J. W. Maxwell, Messrs. T. J. Cawley, H. G. Dunkley, T. P. V. McDaniel, D. D. Phillips, W. Harper-Watson; P. St. L. Bacquie and A. P. Hanson, Supervisors of Instructors, and the Secretary, Arthur Thelwell.

Mr C. L. A. Stuart and Hon. C. A. Reid attended during the course of the meeting

Apologies for Absence.—

Apologies for absence were submitted on behalf of the Hons M. H. Segrè and A. B. Lowe and Mr R. A. Burke.

Confirmation of Minutes.—

The Minutes of the previous meeting having been circulated, they were taken as read, and on the motion of Rev. W. J. Thompson, seconded by Hon. and Rev. J. W. Maxwell, were confirmed.

Matters arising out of the previous Minutes.—

(a) *Cercospora Leaf Spot of Bananas*—Letter from the Director of Agriculture. The following letter was submitted:

No. 214.

14th January, 1939.

"I am obliged to you for bringing to my attention the wish of the Jamaica Agricultural Society that yourself as Secretary and Mr. T. J. Cawley, a Member of the Board, be invited to attend a Conference to discuss the question of treating Leaf Spot.

2. At its final meeting held before the receipt of your letter, the Members of the Conference recommended to Government the formation of a permanent Banana Leaf Spot Control Advisory Board, and suggested that the Hon. G. Seymour Seymour, the Vice-President of the Society be appointed as a Member. This advice has been accepted by Government.

3. I feel confident that the Board of Management will agree that the interests of the Agricultural Society will be well looked after by its Vice-President."

(Sgd.) G. A. Jones,

Director of Agriculture.

Mr. Cawley, speaking on this matter, said it was desirable that the Committee's report, which he understood was now in the hands of

Government, should be made public so that planters may consider it from the point of view of getting further guidance in stemming the ravages of the disease.

He moved the following resolution:—

"Resolved that Government be asked to publish the report prepared by the Special Committee considering the question of the *Cercospora* Leaf Spot Disease of Bananas, as early as possible with a view of affording planters and others most interested in the Banana Industry, an opportunity of studying it in order to obtain further information regarding the control and eradication of the disease."

This was seconded by Mr. Little.

The Chairman explained that two reports were submitted, one dealing with finances, and the other, which he would term a Scientific Report, dealing with other aspects of the Industry, and he suggested that the Scientific Report should be asked for.

The Mover and Seconder of the resolution agreed to this. The resolution was then put to the vote and carried.

(b) *Railway Passes—Statement by First Vice-President.* The Chairman said that along with the Secretary he had interviewed the Colonial Secretary with regard to this matter. Further correspondence with Government had taken place when there was a request for the issue of a Season Ticket in place of the Passes which it was now necessary for the Secretary to forward to individual members for each meeting.

A reply had not yet been received.

(c) *Employers' Liability for Protection of Employees.* The Secretary informed the Board that he had been in communication with Messrs. Manton & Hart with respect to this question. The schedule of the Insurance to be covered included: Group 1, Agricultural Instructors, Foremen and Headmen (26) and Group 2, Messengers, Storemen, Office Cleaners, Loaders and Workmen mixing Dust for Spraying (9). The cost would be £48 10s. 0d., per annum.

On the motion of Mr. Thompson seconded by Mr. Cawley, payment of the amount involved was approved.

Statement of Accounts.—

Statement of Accounts for January was laid on the table. The Secretary asked if it was desired that circulation should be continued.

Some members thought the practice should be discontinued, and Mr. Little moved a resolution to this effect which was seconded by Mr. Dunkley. Messrs. McKay, Stuart and Cawley expressed opposite views and Mr. Maxwell moved that copies be sent to individual members of the Board.

This amendment was put to the vote and carried, five members voting for and two against.

Resolutions.—

(a) *Mr. McKay re Coffee Industry.* Mr. McKay moved the following resolution:—

"Resolved that the Board of Management take steps to approach Government to get the Coffee Industry—which is largely a small settlers' crop, and a very useful money crop—placed on such a basis as will be most beneficial in so far as helping them to market the product in such a manner as will enable them to obtain the best price realisable."

Speaking on the resolution Mr. McKay said that some years ago a Committee had been appointed to study the Coffee situation as it then existed. The matter was then considered particularly from the angle of the curing of the product. One member of the Committee insisted that if the curing processes then in operation were considerably improved, the existing export market for Jamaican Coffee would be reduced. This was not the unanimous opinion of the Committee. No result from the recommendations of the Committee were apparent and in his (Mr. McKay's) opinion it was necessary to aim at two things,—one, a greater bulk per acre, (in view of the fact that days of high prices were over) and two, a standard method of curing Jamaican Coffee so as to obtain a standard recognized product. It was evident, he said, that this would mean curtailment of the liberty of growers; but this was as necessary in Jamaica as it had been found to be in other parts of the world, if the Coffee Industry was to be resuscitated. He moved that a Committee consisting of himself (Mr. McKay), Mr. Cawley, Mr. H. G. Dunkley and Mr. Percy Junor with power to co-opt be appointed to consider and make recommendations for the improvement of the Industry.

The resolution was seconded by Mr. Little who added that the Committee might also make an effort through Government to obtain a Preference for Jamaican Coffee from the Imperial Authorities. Jamaica, he said, had done her part in supporting Empire Industries and he did not think a request such as that would be out of place.

The resolution which was also supported by Mr. McDaniel was put to the vote and carried unanimously.

Coffee Industry.—

(a) *Report.* The Secretary was directed to refer this matter to the newly formed Coffee Industry Committee.

Communications.—

(a) *Letter from C.S.O. re State Agricultural Bank.* The following letter was submitted:—

No. 1300/36.

19th January, 1939.

"I have the honour to acknowledge the receipt of your letter No. 104 of the 9th December, 1938, and to inform you that the Government has given careful consideration to the question of the establishment of a State Agricultural Loan Bank, but considers that the existing machinery for providing loan facilities for small holders can be strengthened and improved with advantage, and that it would be highly undesirable to replace it at this stage by a new organization.

2. The Government is advised that an Agricultural Loan Bank is not an organization which is suitable for providing finance for the small holder and that Co-operative Societies or Co-operative Loan Banks are much more suitable for the purpose."

(Sgd.) J. D. LUCIE SMITH,
for Colonial Secretary.

The Secretary was directed to refer the letter to the Committee which was appointed by the Half-Yearly Meeting to deal with the question of Agricultural Credit.

Memo from Secretary re Committee on Resolutions.—

The Secretary suggested that a Standing Committee of the First Vice-President and the Secretary one to form a quorum, be appointed to deal with resolutions and report to the Board.

This was agreed to.

Matters referred from the Half-Yearly Meeting.—

(a) *Agricultural Credit.* The Secretary submitted the following:—

"The attached resolutions having reference to Agricultural Credit, were considered at the Half-Yearly Meeting and were referred to a Special Committee consisting of:—Messrs. J. H. Blackwood, R. A. Burke, T. J. Cawley, W. U. G. S. Ewen, E. C. E. Grant, Sir Charlton Harrison, Rev. W. J. Thompson, Messrs. U. Theo. McKay, I. V. Reid, D. A. Webster and C. L. Stuart, Secretary.

So far the Committee has held one meeting."

ARTHUR THELWELL,
Secretary.
31.1.39.

AGRICULTURAL CREDIT.

(a) *Credit:*

That the Half-Yearly Meeting deplores the attitude of Government toward the vital question of Agricultural Credit.

(b) *Insurance:*

Whereas this Island is subject to periodical calamities such as hurricanes, floods, droughts and so on, which cause very great and severe damage to agricultural crops, and whereas at such times the peasant farmer and the small cultivator suffer most because they have neither financial reserve nor agricultural credit:

Be it resolved that this meeting empower the Board of Management of the Jamaica Agricultural Society to point out to Government the necessity for some form of Agricultural Insurance available to the peasant farmer and the small cultivator so that should their crops be destroyed by any calamity they may have some means of restoring their cultivations and of tiding over difficult periods without recourse to charity; and

Be it further resolved that the Board consider the matter from all angles so that they (the Board) can make reasonable practical recommendations to Government.

(c) *Loan to Small Holders:*

In view of the fact that Small Settlers have been instructed by Government to seek their monetary aid in the form of loans through the Loan Banks and not through the Industry Aid Board, while the bigger planters may obtain theirs through the Industry Aid Board, and

In view of the fact that some of the Loan Banks are charging as high as 15 and 20% interest on loans and that these loans are made for short periods only (3-6 months) thus creating great hardships on the small farmers who find it difficult to repay these loans in such short space of time:

Be it resolved that the Government be asked by the Jamaica Agricultural Society to make such arrangements as will allow small settlers to obtain loans at a more reasonable rate of interest and for longer periods.

Mr. Little asked if the Committee would report to the next Half-Yearly Meeting, and the Chairman replied in the affirmative.

(b) *Reduction of price of sugar for Preserves.* The Secretary submitted the following:—

"The following resolution with regard to reduction of the price for sugar for making preserves was referred to the Board by the Half-Yearly Meeting.

Whereas it is an established fact that we have in this Island a regular supply of fresh fruits, sufficient for the manufacture of Jams, Jellies, Marmalades, etc., to fill our local requirements and to carry on a good export trade;

Whereas it is now more expedient than ever for us to seek new industries as our main industry "The Banana" is fast going to extinction, and our economic condition is declining rapidly; and

Whereas the preferred price as fixed by Government for refined sugar (£22 10s. 6d. per ton, is more than twice that which our foreign competitors pay, and as sugar forms from 55% to 90% of the weight of sweet preserves, it is made impossible for us to compete with those of foreign manufacture either here or abroad:

Be it resolved that the above be respectfully brought to the attention of the Board of Management asking that they reduce the preferred price of refined sugar used for the manufacture of preserves so as to enable us to compete here and abroad.

2. Copy of the resolution with a request for an explanation of the present position with regard to this matter was referred to the Secretary, Sugar Manufacturers' Association."

3. The following reply has been received.

23rd January, 1939.....

Dear Sir,

We are in receipt of your favour No. 5025 of the 16th inst., enclosing Resolution on the subject of the price of Refined Granulated Sugar for the manufacture of jams, etc., which was passed at your recent Half-Yearly Meeting. This will be placed before our board of Directors when it next meets.

In the meantime, we have to advise that the present position in regard to the supply of Refined Sugar for the local manufacture of preserves is as follows:—

On application on the approved form, we make Agreements with manufacturers to sell them Sugar at the Wholesalers' price of £30 15s. 6d. per ton and to refund them £8 5s. 6d. per ton (leaving the nett price of the Sugar £22 10s. 0d. per ton) when they have proved to our satisfaction that they have in fact used the Sugar so purchased for the sole purpose of their product. We enclose forms of Application and Agreement for your information.

Besides this concession, when manufacturers of preserves are exporting their product to other countries, and make application to us, we arrange to allow them a further rebate of £3 10s. 0d. per ton, making a final price of £19 0s. 0d. per ton, when they have satisfied us (1) as to the Sugar content of their product, and (2) by production of Bills of Lading when it has been actually exported.

We have obtained a recent quotation of the lowest price of Canadian Refined Sugar, which for large quantities (in order to obtain the lowest price) was equivalent to \$2.62 per 100 lbs. c.i.f. Kingston on the 12th instant. This is equivalent to £12 18s. 0d. per ton, and the Customs Duty is £7 0s. 0d. per ton, so that on that date the lowest price for imported Canadian Refined Granulated Sugar was £19 18s. 0d. per ton, or 13/- per ton higher than the lowest price we make to manufacturers of preserves for export.

In this connection, we may point out that owing to the operation of the International Sugar Agreement, one of the main objects of which is to increase the price of Sugar in the world markets, it is far more likely that the price of imported Refined Sugar will rise rather than fall during the next year or two.

We may also remark that to judge from the ever increasing number of Agreements we are making with manufacturers of preserves, etc., it cannot be so impossible for such manufacturers to compete with others, as the Resolution in question might lead one to think.

Yours faithfully,
The Sugar Manufacturers' Association
(of Jamaica, Ltd.).
(Sgd.) D. J. VERTY.
Manager.

In reply to a question from Mr. Cawley, the Chairman stated that there was a Sugar Refinery in the Island.

Mr. Dunkley said that from the discussion at the Half-Yearly Meeting his impression was that reduced prices were sought not only for large quantities in tons of sugar, but for quantities that would be required by small manufacturers, say of a bag or of 100 lbs. upwards. If such purchasers had to buy from retailers then they would not get the benefit of the concessions.

Mr. Cawley pointed out that Government had subsidized the Sugar Industry and the subsidy was not reflected in the price paid to cane farmers for their canes. He did not see that quotations of the price of imported Canadian Refined Sugar plus Import Duty should be taken as a basis of quotations for native refined sugar.

The Chairman said the main consideration seemed to him to turn upon the fact that there was a large protective duty on imported refined sugar, while there were no excise charges on the locally produced article. Prices quoted, therefore, should not be based on the retail price of imported refined sugar. Considering that this was an attempt to assist a local industry, every effort should be made to provide the sugar as cheaply as possible. He thought the Board should take up the matter further with the Sugar Manufacturers' Association placing these facts before them.

The Secretary was directed to do this.

Reports from Committees.—

(a) *Instructors.* The following report was read and noted:

The Board of Management:

1st February, 1939.

The Instructors Committee met this morning and beg to report as follows:—

1. Demonstration Plots:—Arrangements have been made to conclude the visit to Demonstration Plots on Tuesday, the 7th February, 1939.—the cost of operating these plots as well as the Revenue from them will be sent to Members of the Committee prior to the visit.

2. Foreman Mullings who sustained an accident resumed work on the 9th January, 1939.

3. Foreman Gayle in charge of the Charlton Plot will be given two weeks' pay in lieu of notice to terminate his appointment.

4. The Committee approved of Instructors co-operating with the Department of Agriculture in the propagation of Seedless Limes.

5. Resolutions from the Instructors Conference were considered and it was decided to circulate these to members of the Committee.

These Resolutions will be dealt with at the next Meeting of the Committee.

6. The Secretary has been authorised to expend the sum of £20 (donated by the St. Elizabeth Citizens Association) on Bombay Mango Extension work among small holders of the parish; later on if necessary, consideration will be given to the Society making a similar grant for this work.

7. Leaves of Absence have been granted as follows:—

Supervisor Hanson—month of March, 1939—Supervisor Bacquis to undertake supervision of the Eastern Section during this period.

Instructor Thompson—7 days from the 1st February, 1939.

Application for leave from Instructor Shirley was deferred.

Application for leave from Instructor Henderson was not granted.

(Sgd.) G. A. JONES,
Chairman.
" ARTHUR THELWELL,
Secretary.

(b) *Deputation to Government re Tenders for Local Foodstuffs.* The Chairman reported that the Deputation met the Colonial Secretary and went into the question as to whether Government would agree to the Society or the Marketing Division or both undertaking the supply of local foodstuffs to Government Institutions on a fixed minimum economic schedule of prices.

The Deputation had been sympathetically received and the Colonial Secretary had promised to take up the matter with Government.

Diseases of Plants and Animals: Insect Pests.—

(a) *Panama Disease of Bananas: Report for November.* The report for November, on the incidence of Panama Disease in the Island was submitted.

The Secretary stated that copies had been issued to individual members of the Board.

Shows.—

(a) *Correspondence re May Pen Show Ground.* The Secretary read the following letter addressed by the Hon. Mr. Muirhead to the Honourable Colonial Secretary.

4th January, 1939.

Sir,

1. This is to advise you that I have given unreservedly to the Clarendon Branches Associated of the Jamaica Agricultural Society a plot of land—Twelve (12) chains by Twelve (12) chains situated on Denbigh Commons as per survey made by the Association in the year 1937, for the purpose of holding Agricultural Exhibitions and other Communal functions.

2. This land is to be vested in the Colonial Secretary of Jamaica and to be managed by a Board of Trustees consisting of:—

The Hon. the Colonial Secretary of Jamaica.

" Custos of Clarendon.

" Director of Agriculture.

" Secretary, Jamaica Agricultural Society.

" Chairman, Parochial Board of Clarendon.

" President, Treasurer and Secretary of the C.B.A.

3. Steps must be taken within reasonable time for the erection of permanent buildings and fences; and the laying out of Ornamental and/or shade trees.

4. I have instructed my Solicitors (Messrs. Manton & Hart) to convey the above land to you.

(Sgd.) E. MUIRHEAD.

Mr. Dunkley said that the Custos had promised to delete paragraph 3 of the letter and had given him permission to say so at that meeting. He, the Custos, would confirm this in writing. He desired, however, that the lands should be properly fenced as early as possible. He had no doubt that now that the grounds were offered unreservedly, Government would have no difficulty in accepting and he would ask that steps be taken to have the lands vested in the Colonial Secretary and also that the whole question be referred to the Shows Committee, for action.

This was agreed to and the Secretary was directed to act accordingly.

(b) *Portland Branches Associated—Application for Date—Easter Monday, 1940.* This was granted.

(c) *Mizpah Agricultural Exhibition, Easter Monday—Application for Grant.* Application from the Mizpah Branch for a grant towards their local show being arranged for Easter Monday, 1939, was submitted.

After discussion the matter was deferred.

Juvenile Branches.—

(a) *Nonsuch—Application for Grant re Show.* Application from Nonsuch Branch for a grant towards their Annual Exhibition arranged for the 23rd March was submitted.

A sum of 10/6d. was authorized.

Resolutions from Branches, etc. —

Matters listed under this head were referred to the Standing Committee on Resolutions.

New Members.—

On the motion of the Chairman seconded by Mr. McDaniel the following were elected to the membership of the Society:—

Abraham Dolphy, 16½ South Camp Road, Kingston.

Mrs. Ella L. Brandon, 14 South Camp Road, Kingston.

E. A. Foster-Davis, 104 Tower Street, Kingston.

Sam Parris, Peters Lane, Kingston.

Basil Densham, Mandeville.

Mrs. H. D. M. Orrett, 5½ Waterloo Rd., Halfway-Tree.

A. C. Barnes, C.M.G., Frome, Grange Hill P.O.

Major A. D'Arcy, Sylvia Lawn, Ocho Rios.

Mrs. Daisy Mair, 4 Devon Road, Halfway-Tree.

A. T. Pullar, 49 Arnold Road, Kingston.

Monsieur Lois Castaing, Societe Industrielle et Agricola, F. W. I.

A. Herbert Lindo, 21 Connolly Avenue, Kingston.

L. L. Ingram, The Collectorate, Black River.

Other Business.—

(a) *Hanover Agricultural Show—Report.* Report from Mr. Hastings on the Hanover Agricultural Show held December, 1938, was presented.

The Secretary was directed to publish this in the Journal.

Mr. McKay said that in this connection he would like a report as to why the display from the Society which should have been made at this Show was not carried through.

This was referred to the Instructor's Committee.

(b) *Application from Cascade Branch for Subsidy—half cost of a Buck* was submitted and a grant of £1 11s. 6d. was authorised.

(c) *Return of Arrests by Authorized Persons* for quarter ended 31.12.38, was submitted. The Secretary was directed to publish a Summary of this in the Journal.

(d) *Resolution from Cambridge Branch re Leaf Spot and Selection of Bananas* was referred to the Standing Committee on Resolutions.

(e) *Letter from C.S.O. re case of Authorized Person, Francis Bennett.* The following was submitted and noted:—

No. 5116/38.

28th January, 1939.

"With reference to your letter No. C.S.O. 89 of the 16th November, 1938, I have the honour to inform you that the Inspector General of Police has been authorised to pay to Authorised Person Francis Bennett, the sum of £8 2s. 0d., in reimbursement of the expenses incurred by him as a result of his prosecution on a charge of false arrest."

(Sgd.) J. D. LUCIESMITH,
for Colonial Secretary.

The Secretary was directed to express appreciation to Government for this consideration.

The meeting then adjourned until Wednesday the 1st March, 1939, at 11.30 a.m.

TERRACING.

By G. WRAY, Agricultural Instructor.

RECENTLY, in my daily round, I came across an example of terracing which demonstrated very clearly the value of enterprise coupled with scientific method in agriculture. It was on the holding of Mr. Hugh Tomlinson, owner of the Hampstead Property in Western St. Elizabeth.

His home is at the top of a fairly steep hill, the slopes of which consist of relatively shallow soil covering beds of flat rock. The lie of the land is such that little or no tillage and cultivation can be done.

Mr. Tomlinson has terraced the eastern slope of that hill most artistically. For weeks he had earth carted to fill up the concrete-buttressed terraces which are now about 10 ft. wide and 30 ft. long with perhaps a 3 ft. drop to each bed. The result of his arduous task has been the transformation of a practically useless hillside into what is to-day a lovely kitchen garden.

Every agriculturist in this Island should be interested to know the results from one of these terraces. The plot was thoroughly prepared and cow manure applied some time ahead of actual planting. Only 15 lb. of seed potatoes were put in, and Mr. Tomlinson had the satisfaction of reaping 300 lb. of fine sized potatoes—a yield of 20 to 1.

Even the most uninviting type of land, of which there is a lot in Jamaica, has prospects for the enterprising farmer who will adopt correct methods in agricultural practice.



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LOSS OF SOIL FERTILITY.

IN the Journals for October—November, 1937 and March 1938, articles (some of them with illustrations) were published drawing attention to the serious menace of soil erosion, and setting out in clear language measures which should be adopted by cultivators to combat the menace. An article written by the Agricultural Chemist was also published in the Journal for May, 1937.

Despite these attempts to help correct a most serious situation, little attention is being paid to the matter by cultivators. As a result of the development of Government's Land Settlement Policy and extended cultivation, new lands are continuously being opened. On these new lands cultivators still follow the old practice of clearing the land, forking or hoeing it and leaving the bare patches to the mercy of scouring rains.

Recently in the upper part of Clarendon during a heavy rainfall it was observed how easily all this new top soil was being washed down into the gullies and lost in the Minho below.

Attention of cultivators is once more called to the simple measures which may be easily adopted to prevent this terrible waste of top soil and rapid deterioration of their land. Most of the land available to cultivators are sloping lands situated on hillsides and the first care in starting cultivation should be to cut a deep main trench at the head of the field. This trench should be at least 3', x 2½', x 2½', and should have no outlet running vertically down the slope. Below this main drain, at suitable intervals and running parallel with it and across the contour of the land, a series of blind trenches of smaller dimensions should be cut.

If the land is heavy and the rainfall is such that drainage is important, trenches should be cut zig-zag across the hill and *not straight down*, with suitable lips at frequent intervals along the trench.

At intervals of about every chain or so, bands of grass about three feet wide (either Guinea grass, Khush-khus or Lemon grass) should be planted thickly, right across the field, preferably just above the blind trenches. This will prevent the drains breaking away, bind up the soil, break the downward flow of water and catch the wash of the soil. From time to time the grass should be cut and used to cover the land in between the bands of grass. It is preferable to use Khush-Khus or Lemon grass (instead of Guinea Grass) as the temptation to cut the grass and feed animals without returning the manure to the land will be less.

If the slope is gentle, and the land suitable, plots may be terraced at small cost. The method of terracing is as follows:

- cut one trench across the contour of the plot;
- cut another trench running parallel to, and
- eleven feet above the first trench.

The soil from the lower trench is thrown up on the strip above, after the near side of the strip has been packed with stones or grass, while the soil from the upper trench is thrown back on to the strip. The upper portion of the strip beginning from the lower lip of the upper trench is then forked and the earth shovelled or thrown back toward the lower part of the strip. This is repeated all the way up the hillside. The result will be that the land is then laid out in a series of broad steps running parallel with each other. These steps are then forked and all the cultivation done on the terraces which are nearly flat.

Along the back of these terraces bands of Guinea grass or *Khus-khus* or Lemon grass are then planted so as to help hold up the terraces.

Small streams or gullies should not be allowed to run downhill, but should be led backward and forward across the and, and at the end of each lead a pit at least four feet square and four feet deep should be dug, so as to break the fall of the water down the hill. These pits should be packed with stones and the further end of them staked and latticed (like wattling) so that the flow of water will seep through the openings of the wattling. From time to time these pits must be cleaned out and the transported topsoil thrown back as an earth mulch on to the land.

These are simple devices which any cultivator can undertake himself at little cost and not a lot of labour. The whole area need not be done at a single effort, but a start should be made right at the very beginning of cultivation, and the policy extended throughout the year until the whole area is laid out along these lines.

On the Society's Demonstration Plot at Buckingham in the parish of St. Thomas some excellent work in terracing has been done and cultivators in this area are advised to pay a visit to this plot and copy the methods of cultivation undertaken there.

The old practice of planting crops in straight lines up and down hills still prevails unfortunately. The system is faulty and has been condemned long ago. All crops, whether they be staples such as coffee, citrus, and coconuts, or whether they be annuals such as cocoas, or small crops such as pines, or catch crops such as potatoes and peas, should be lined out and planted *on the contour*—that is across the hill in half moon lines following the slope.

Quick deterioration and serious erosion always takes place on a plot of land which has been left bare.

Some form of vegetation, not necessarily heavy mulching but grass cuttings and weedings should always be littered over bare plots so as to provide cover and protection.

Working the soil into fine tilth too long ahead of planting time is very bad practice. Only rough forking should be done and the final operation left for as near to planting time as possible.

This question of erosion—loss of soil and deterioration of land—has long ceased to be merely a matter of theory. To-day it is a question of hard facts, and it is a sad sight to see how large areas of once fertile Jamaica lands are fast losing their value through careless cultivation.

All the members of the Society should begin at once to adopt on their holdings the measures suggested in this and the other articles to which reference has been made.

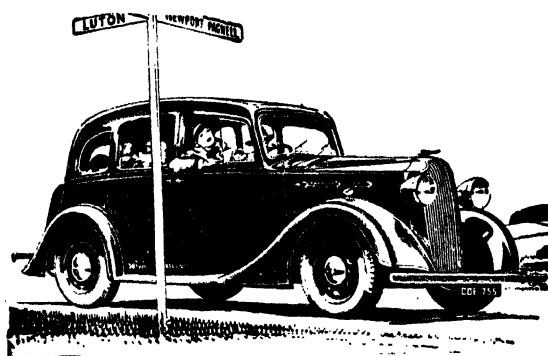
A. T.

FLOWER SEEDS.

IT should be borne in mind that the Society's Seed Department now stocks excellent varieties of all kinds of flower seeds. Garden lovers who have purchased these seeds during the season have got excellent results. Packets are sold at very reasonable rates.

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OBSERVATIONS ON THE NECESSITY OF RE-AFFORESTATION IN ST. CATHERINE.

By CLARENCE BYLES—Agricultural Instructor.

THE subject of re-afforestation has been laboured year after year by the writer and his predecessors at Branch meetings.

Each year this necessity becomes more and more apparent. It is no longer a need, but a necessity of vital importance in areas I propose mentioning.

Distributions of plants have been carried out and every possible effort made to induce the people to plant trees. But as against our efforts we have had a reckless wave of denuding of all hillsides.

It is estimated that to every economic tree that has been planted during the last ten years, there has been the destruction of several thousand trees.

I make special mention of the areas of Point Hill, Brown's Hall, Marlie Hill, Ginger Ridge, Bellas Gate, Kentish, and Garden Hill. These areas form our best yam and sugar districts, and have been so for a large number of years.

To-day the growing of yams is only possible if the grower is prepared to transport his yam sticks over a long distance at prohibitive prices from outside districts.

In the case of the boiling of sugar, this is only possible when mango and other fruit trees are defoliated and used as fuel.

This condition must be viewed very seriously indeed, as it will only be a question of time when the production of yams and the boiling of sugar will be a thing of the past in these areas.

Visits made recently to Mr. J. P. McPhail's Hills on Tulloch in the St. Thomas-ye-Vale area disclosed how successfully a simple progressive programme of re-afforestation can be carried out.

Mr. McPhail's project is very commendable, and the system adopted is an excellent one indeed. His programme is extensive and represents years of hard and continuous work. His success, nevertheless, is not only encouraging but compensating.

Acres of beautifully established "Mahoe" are now to be seen on hillsides which were once cultivated with catch crops.

On the adjoining hills can be seen similar areas on a smaller scale established by Mr. T. P. V. McDaniel of "Dove Hall."

I am seriously advocating that every farmer in the above area should immediately establish small nurseries of economic trees, and a system of progressive tree-planting be inaugurated and carried out as part of the routine work of agricultural undertakings for the area.

The Forestry Department has been doing very valuable work in this direction, and I am sure that the Society's co-operation will help to hasten the accomplishment of this very important and desirable work.

An alternative scheme would be the establishment of nurseries by the Forestry Department in the above areas, and that seedlings of economic trees be made available to small farmers. A system of progressive tree-planting would then be carried out as part of the routine work of Agricultural Branches in the area. This scheme could be included in our prize holding competitions, and special tree planting competitions inaugurated in connection with Branch Societies.

POTATO SCAB.

THE Common Potato Scab is one of the most wide spread diseases of potatoes and is well-known in Jamaica. It exists mostly on soils which are light and poor in humus, on newly taken up lands and on soils where lime or ashes has been applied. Alkaline soils produce scabbed potatoes. It is therefore bad practice to lime a piece of land on which potatoes are to be grown.

Scab renders potatoes unsightly and reduces their market value. The purchaser also suffers loss as potatoes with scab have to be peeled deeper resulting in extra waste.

Potatoes affected with scab do not store well and are more liable to be attacked by fungus, and to decay than those with sound skin. The total loss from scab is, therefore a serious matter.

Cause.

It was at one time thought that scab was due to mechanical injury or to the presence of certain irritating substances in the soil. This, however, is not the case as it has been proved that soils which have been sterilized do not produce scabbed potatoes.

Common Scab is known to be caused by a definite organism of the soil belonging to a group known as the *Actinomycetes*. These organisms set up an irritation which causes the growing tuber to develop loose tissues at the infected spot and instead of the skin being smooth scabs are produced. This scabbing is really an attempt of the tuber to protect itself by keeping out the invading organisms. In this it is fairly successful as it is well known that the parasites are confined to the top layers of the tuber, whereas internal tissues remain unaffected. When the potato tuber has developed and is sprouted from the growing plant the production of scab ceases.

The organisms which produce scab are to be found widely distributed in cultivated lands and are really normal inhabitants of the soil. They are particularly severe in:

- (a) soils of sandy or gravelly nature, poor in humus.
- (b) soils which are alkaline or which has become alkaline by the addition of lime, soot or ashes, or to which unsuitable fertilisers have been added.

To control scab, therefore, the first aim is to change the conditions in the soil which are favourable to the disease. It is therefore clear that soils which are being prepared for growing of potatoes should not be limed.

It has also been proven that soils which are high in humus (organic matter) resist the disease and produce clean potatoes and cases are on record where severe attacks of scab have been prevented on an infected piece of ground by the application of green manure and grass cuttings.

Control.

(1) *Light, sandy or gravelly soils.* Organic matter of a vegetable nature should be applied or a green cover crop ploughed in well ahead of planting time. Cuttings of light grass may be dug in previous to planting at the rate of about $\frac{1}{2}$ barrow cuttings to four square yards, or ten to twenty tons (weighed green) to the acre, according to the nature of the soil.

In England good results have been achieved by spreading the grass in and around the trenches where the potatoes are planted and covering this up when moulding the rows. In this method care has to be

exercised to avoid too heavy an application which will lead to overheating of the bits.

(2) *Treatment of alkaline soils.* Applications of lime or ashes or soot should be avoided and if the soil be too highly alkaline this should be corrected by the use of super phosphate of lime and sulphate of ammonia.

Under small garden conditions a dressing of fine sulphur at the rate of one ounce per square yard will be most beneficial. The result of these treatments will be more noticeable during the second crop after treatment.

(3) *Seeds.* Only clean seeds should be used for planting as the eyes of scabbed potatoes are likely to be injured. Hence it is good practice to have the "sets" well sprouted before planting.

(4) *Hygiene.* Peelings and rejected scabbed potatoes should not be thrown on the manure heaps which will subsequently be put on to the land. These should be kept in a spread heap, entirely disinfected and not used as manure.

A. T.

AN EXPERIMENT WITH WHITE YAMS.

By C. V. ATKINSON, Instructor.

NOT being satisfied that the best results were obtained from the White Yam Competition carried out in St. Ann and Clarendon during 1937-1938, I decided to experiment with eight hills during 1938-1939.

Soil: The soil selected was the ordinary Red Dirt Soil (Terra Rossa) on which several crops were grown over a period of many years.

Holes: These were dug around a pimento tree and were not less than 3' x 3' x 3'. Care was taken to put the surface soil by itself and the subsoil also by itself. After leaving the holes open to the sun for eight weeks, they were moulded by putting the surface soil to the bottom and the subsoil to the top. No manure was put into the holes.

Distance: The hills were dug at about 7' apart.

Heads: The average weight of these was about 3½ lbs. One head was put into each hill except hill No. 2 in which was also planted a small "seed."

Time of Planting: The intention was to plant in April but drought prevented this. The delay caused the heads to shrink rather too much. Planting was done on the 28th May.

Sticks: The hills were placed far away from the pimento tree (green) which allowed my using sticks (leaders) measuring from 12'-16' on to the tree.

Manures: Hills Nos. 1, 2, 4 and 7 were given half bag each of sheep manure (well rotted) forked in around them. Hills Nos. 3 and 8 got 10 ozs. of No. 2 fertilizer sprinkled around them and stirred in with one barrel each of well rotted cow manure (gathered from pastures) forked in around them. This was all done on the 18th June and on the 24th August another 10 ozs. of No. 2 fertilizer was applied to hills Nos. 3 and 8 making in all to these two hills 20 ozs. each of No. 2 fertilizer.

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Mulching: The soil around the hills was mulched fairly heavily after the vines ran out the sticks and was also again lightly mulched about August.

Cultivation: The soil around the hills was forked. The plot was cleaned twice.

Reaping: The yams were reaped on the 15th February, 8½ months from the time of planting.

General.

Hill No. 2 was at a disadvantage having the yam seed planted in it. The yam from the head proper only gave 40 lb. less than any other. The seed gave 23 lb.

The weight of yams produced from the eight hills including the yield from small "yam seed" in hill No. 2 was 543 lbs. more than the best weight from the twelve hills in the 1938-39 competition.

Cow manure if available in large quantities will give good results in the growing of white yams. The application should not be less than 1 barrel per hill.

Summary.

Hills No.	Manures used.	No. of Application.	Results.	Remarks.
1	½ bag Sheep manure	1	49 lbs.	
2	½ ditto	1	40 head	
4	½ ditto	1	23 seed	
7	½ ditto	1	68	
3	20 ozs. no 2 fertilizer	1	68	
		2 (10 ozs. eac.)	87	10 ozs. ea. application
8	2 ditto	2 "	55	ditto
5	1 brl. Cow manure	1	74	Gathered from pasture
6	1 ditto	1	79	ditto
Total			543 lbs.	

MORAVIA AGRICULTURAL SHOW.

The citizens of Moravia, Yankee, Silent Hill, and Alston were congratulated on the occasion of the Local Agricultural Show held in the Moravia Schoolroom on the 15th December, 1938. The surprisingly high standard of the exhibits of the Juvenile Branch in vegetables, fruits, flowers and needlework, gave the building a very bright and attractive colour. Over 50 classes of exhibits were received, and the competition in each class was such that the judges had a difficult, but nevertheless interesting task in awarding many prizes. Messrs. O. P. Martin, Superintendent of Agricultural Training, C. M. Robotham, and J. A. Graham, Instructors, P. St. L. Bacquie, Supervisor, Mrs. Eric Elliott and Miss Cooke, were the judges. Rev. H. T. Cuthbert presided over the short function which followed. Instructor Robotham emphasized the joy and good that can result from co-operation. Mr. O. P. Martin said he was glad that the time had come when Agriculture was being linked with Education. He commented favourably on the fine display which was a pleasing reflection on the interest of the community and Show Committee. Mr. Bacquie remarked that cases of malnutrition would not be so numerous if more value were placed on locally grown foodstuffs.

G. R. GATLEY,
Secretary.

COMMITTEE ON COFFEE INDUSTRY.

AT the regular meeting of the Board of Management held on the 1st February, Mr. McKay moved the following Resolution:—
“Resolved that the Board of Management take steps to approach Government to get the Coffee Industry—which is largely a small settlers’ crop and a very useful money crop—placed on such a basis as will be most beneficial in so far as helping them to market the product in such a manner as will enable them to obtain the best price realisable.”

The following were appointed a Committee to consider the Industry:—

Messrs. U. Theo. McKay
T. J. Cawley
H. G. Dunkley
Percy Junior.

2. A Meeting of the Committee was held at the Society’s Office on the 8th March, 1939, at 11 a.m.

Present:—

Messrs. U. Theo. McKay (Chairman)
Percy Junior
Arthur Thelwell (Secretary)
Mr. R. A. Burke attended during part of the proceedings.

3. Mr. McKay welcomed and expressed appreciation of Mr. Junior’s attendance.

Mr. Junior thanked Mr. McKay and said that his interest in the Coffee Industry was purely for the benefit of Jamaica and had nothing to do whatever with his private interest as a dealer in Produce. This interest in Coffee covered a long period of time and as far back as 1936 he had addressed to the Secretary of the Jamaica Agricultural Society the following memorandum which is now presented:—

16th May, 1936.

“I recently waited on the Committee appointed by your Society to investigate and report on the best method of curing our Coffee in order to obtain the best results for the exporter as well as the Producers; but owing to the paucity of attendants the meeting was postponed and I therefore had not the opportunity then of giving my views on this important matter.

As owing to my present state of health I may not be present when your Committee next meets, I am now recording for your kind consideration my considered views based on over quarter century of experience in the Produce business both local and foreign.

Recently there has been considerable complaints from buyers abroad, relative to the quality of Jamaica Coffee that they have received, with the result that there is an alarming falling off in the demand for our grades.

Reference to statistics compiled by the Government will show that while in past years our export trade of Coffee kept fairly steady with an upward tendency, during the last year or two, a period synchronising with the time that complaints have been reaching us, there has

been a considerable falling off in our export trade so that while in 1933 our exports to Canada our principal market was 9½ million lbs., in the following year the quantity exported fell to 6¾ million lbs. a decrease of nearly 33%.

Alarming as these figures may appear, the gravity of the situation is more evident when it is realised that Canada at the same time imported more Coffee of the same mild quality as ours than she did in previous years. The increased quantities imported by her were produced in Kenya, Haiti and Central American Countries where I am credibly informed that the standardisation of grades is established by Government and from which countries buyers buy with no feeling of uncertainty of the quality they will receive.

From interviews which I have had with big buyers abroad and from correspondence in my possession, the complaints are generally of the same nature, i.e., that our Coffee has an earthy unpleasant flavour in the cup which as we all know is due to excessive fermentation taking place in the cherry before curing.

I submitted samples of various grades of Coffee at the last meeting of your Committee and I think it was proved to their entire satisfaction that while in appearance a well prepared unwashed coffee shows no difference to the washed coffee; upon closer examination the aroma of the unwashed or cherry cured coffee was distinctly earthy as is complained of by the buyers. On the other hand washed coffee was both more attractive to the eye and very pleasant to the smell.

The above applies to our better grades, but when the lower types were submitted, the question was asked—how was it possible to find a market for them. They all contained black beans, quakers and other objectionable features.

I may here mention from my personal knowledge, of an opportunity for the disposal of large quantities of Jamaica Coffee which was lost to the Island as the result of the unsuitableness of our grades for the better class of foreign trade.

The representative of one of the largest chain store dealers in the world placed a trial order some time ago with me for one thousand bags of Jamaica Coffee but much to my regret no further business resulted owing to the unsatisfactory flavour in the cup.

At present Canada is our one and only market and if this is lost to us the Coffee Industry of this Island will be doomed to extinction.

At present it is contended that the lower types of Jamaica Coffee supply a cheap trade abroad and if the quality is improved whereby it is taken out of its class necessitating a higher price for same, it might result in a diversion of trade to countries producing similar grades and that are more favourably placed to produce and supply washed coffee at lower prices.

I can think of no other country that is in a position to do this except Central America and their better grades of Coffee would not be able to compete with our better grades owing to the preference which we enjoy through existing trade arrangements.

For the present however, I am not thinking of the price factor; this I am certain will not be necessarily increased by improving the quality. I am more thinking of producing an article that will command a ready market at a price than producing an unsuitable article with a resultant decreasing demand.

I am strongly in favour of pulping and washing all grades of Coffee as this is the only way that the unpleasant features can be eliminated.

TO FIGHT BANANA LEAF SPOT DISEASE

ARMSTRONG STANDARD SPRAY PUMP AND KNAPSACK (AMERICAN).

CAN ALSO BE USED WITH A BUCKET OR
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SPRAYS THE TALLEST BANANA TREE
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PUMP—Made of solid brass and single action,
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KNAPSACK—Fits operator's back perfectly. Made
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imperial gallons capacity.

Equipped with standard brass nozzle and five discs
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Sold with three extensions of nineteen inches each,
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ASK YOUR GROCER FOR A FEW

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THEY ARE DELICIOUS!

— Manufactured by —

THE JAMAICA BISCUIT CO., LTD.

It might be contended that the cost of the article is increased by pulping and washing but it must at the same time be also admitted that this extra cost is more than offset by the loss avoided in the necessary careful gathering of only ripe berries to ensure proper pulping. In so doing the immature berries which would have been indiscriminately stripped off the trees along with ripe cherries for curing in the husk are left to fully develop thereby giving increased weight in the clean coffee. In addition to this, the cost is also reduced in the shorter period required for curing when pulped and washed as also in the hulling and picking.

It is suggested that owing to the scarcity of water in some districts it is not practical to wash coffee in all places but to disprove that it is only necessary for me to point out that both Manchester and St. Ann stand in the same position with respect to a water supply and it is well known that all Coffee produced in Manchester is pulped and washed while in St. Ann for the most part Coffee is sold unwashed and if further evidence is required that a water supply is not the deterring factor to the St. Ann producer, I may mention that the large producer with an abundant supply of water at their command also cure their coffee in the cherry.

Every Coffee exporter knows that Manchester Coffee is always in great demand and is well reported on so much so that the name Manchester is often used to dispose of Coffee grown in parishes other than Manchester but of similar good appearance while the St. Ann Coffee although grown in similar soil and under similar climatic conditions is not so favourably received by Coffee buyers. It is therefore quite obvious that if the St. Ann coffee was prepared in the same manner as the Manchester coffee, it would realise no lower price in addition to which, instead of the very little demand which now exists for this unwashed coffee, it would have the same ready and steady call as the well prepared Manchester Coffee.

I will now conclude as one interested in the advancement of this Island through the development to the fullest extent of its agricultural resources, by offering the following suggestions.

At present the Agricultural Society supplies pulpers to its members in most of the Coffee producing districts and I suggest that arrangements could be made whereby their pulpers is also hired to non-members at a nominal fee for pulping each box of cherry and that it should be made illegal for the pulped Coffee to be dried other than at places suitably prepared for the purpose.

The system of hiring pulpers to small producers is now in operation by private owners with apparently profitable results as there has been recently a considerable increase in the use of these portable pulpers and there should be no difficulty in the Agricultural Society making this a compulsory and Island-wide scheme.

I trust that my views and suggestions as given in this communication will be helpful to your Committee in arriving at some conclusion that will be of great benefit to our Coffee Industry.

Mr. Junor explained that at that time there was great opposition to his views with regard to the improved curing of Coffee. It was held by certain interests that there was high demand for inferior grades. Since those days, demand for the inferior grades had fallen and the Island is doing damage to the Coffee Industry by producing Coffee which was not properly cured.

A discussion took place as to whether the vicinity in which the Coffee was produced (apart from Blue Mountain Coffee) affected the grade of the Coffee.

Mr. Junor said that this was not so in his experience and as an instance pointed out that Coffee produced in the low-lying areas of St. Catherine received as good a price as Manchester Coffee, because it had been properly cured.

It was also brought out that although the areas in St. Ann were as good or better for growing coffee than the areas in Manchester, the parish of St. Ann did not have a reputation for Coffee, due in his opinion to the fact that St. Ann Coffee was cured in the husk.

The disadvantages of curing Coffee in the husk were then discussed.

It was shown that where pulping was standard practice, green and turned berries were not gathered as these could not be pulped; but this control could not be had over coffee cured in the husk.

It was also concluded that water was not the controlling factor in the pulping and curing of Coffee, as the Manchester areas with a limited water supply pulped and washed, while in other areas where there was an adequate supply of water the coffee was cured in the husk.

4. *Storing.* The storing of coffee was considered and it was brought out that when coffee was stored before it was properly cured, or when it did not receive regular sunning when stored it depreciated.

5. *Markets.* Markets were considered.

Mr. Junor pointed out that Canada was the chief market for Jamaica Coffee (save Blue Mountain Coffee which was sold in London) and it was alarming that although Canada was importing and using larger quantities of coffee they were taking less of Jamaica Coffee. There has been a great falling off of the local trade with Canada.

In 1933 our exports to Canada, our principal market, were 9½ million lbs., in the following year the quantity exported fell to 6¼ million lbs., a decrease of nearly 33%. Increased importation into Canada was being taken care of by Kenya, Haiti and other Central American countries.

Jamaica Coffee is duty free into Canada while the other countries have to pay a tax of 3 cents per lb.

Mr. Junor in discussing the quality of Coffee as influenced by elevation said the main difference between the Lowland Coffee and the Upland Coffee was that the beans from the Lowlands were smaller than those produced in the higher altitudes.

6. *General:—*

It was agreed that Cherry Ripe Coffee pulped and washed gave a greater percentage of returns than Coffee cured in the husk.

It was agreed also that if the Grade of Coffee were to improve, prices and demand would also go up.

There was a high *pro rata* difference between the price of poorly graded coffee and the better grades.

Another argument for pulping coffee was brought out when it was explained that a barrel of 120 lb. of Coffee in the husk would only give 50 to 60 lb. of clean coffee, whereas a barrel of Cherry Ripe Coffee, pulped and washed, would give as high as 90% of clean coffee.

A discussion on the complaint that the Jamaica Coffee was "earthy" in taste took place and it was agreed that the earthiness was a result of over-fermentation brought about by curing coffee in the husk.

7. *Decision:—*

The Committee came to the following conclusions:—

i. That after discussion and consideration of Memorandum submitted by Mr. Junor, the Committee has come to the conclusion

that one of the first things to be considered in the improvement of the Coffee Industry is the method of curing coffee, and that in order to cure suitably for the market all Coffee should be pulped and washed.

ii. That there appears to be an unlimited demand for Jamaica Coffee which has been properly cured, while every year demand for low grade Coffee is becoming less and less.

iii. That as far as possible the Agricultural Society, backed by Government, should provide Pulpers to small producers and that Instructors should be asked to form co-operative organizations for the communal use of Pulpers.

iv. That Agricultural Instructors be asked to urge upon producers the necessity for handling only Cherry Ripe Berries.

8. In the Campaign for curing Coffee the Committee also decided:—

i. That every effort should be made to leave the Producer free to cure his own Coffee along approved lines, and that under no circumstances should he be forced to sell to large factories.

ii. To endeavour to establish nurseries in different parts of the Island and to pay special attention to better planting and improved cultivation.

COST OF PRODUCING CROP OF GINGER.

By TOM SHARPE.

THIS statement is prepared from figures supplied by Mr. Chas. S. McNamee of Christiana, who has grown ginger for 30 years or more, and at present has about seven acres. He buys plants as well as setting aside his own. He cultivates on a scale that makes his own labour trivial in comparison to the cost of the whole, and so his example is the more valuable.

The fall of prices of ginger in 1938 focussed attention on this subject, and, unfortunately, there has been a further decline in 1939. Prices have ranged from 2d. to 1d. per lb. Last year it was nearer 3d. to 3½d. per lb.

In 1938 I lost money on ginger and this year I have not summoned up any courage, as yet, (March) to commence reaping. It might be better to save the crop in the ground until 1940.

Prices have been bad at previous times, to my knowledge, but one does not easily give up planting ginger for the following reasons:—

i. Hope for better prices, and, latterly, expectation of a more equitable marketing arrangement.

ii. Yams and indeed other food crops grow very well indeed inter-planted in ginger, and if you break even with ginger, the yams will give you a return.

iii. Here and there, in this area, are dry loose soils that suit ginger, but not bananas (or even cane).

iv. Ginger peeling and drying provides work for women. On the whole, acre for acre, ginger provides more work for field labour, and for women, than does the banana. Even after ginger is sold to Merchants, it provides work for women, sorting and drying, etc.

To calculate the cost, one should realise some points about production. (The usual units considered are 100 lbs., and one square chain or 1/10th acre.)

(a) 250 lbs. green ginger (plants) will plant a square chain.

(b) The crop from this is variable, depending on the weather etc., etc.; 800 lbs. is fairly low; unless conditions are adverse, I would get, per square chain, 1,000 lbs.

(c) From the 1,000 lbs., by the time you have set aside say 200 lbs. against plants, and divide by 4, you get say, 200 lbs. of dry marketable ginger. (The proportion of dry to wet varies with the flour and water contents of the wet (green) ginger. One in four might be called average.)

(d) Price of plants depends on price previous year. 1938 it was about 8/- per 112 lbs. If we assume that I set aside 200 lbs. per square out of my own crop and do so again, then I need only count in the price of 50 lbs. against the cost of growing.

	s.	d.
Plants. My own, plus 50 lbs. at 8/- per cwt. ...	4	0
Cleaning and forking ...	7	6
Refining soil ...	2	6
Planting, say one man at 2/- and a woman at 1/3d. ...	3	3
Two weedings at prices from 9d. to 1/-, say ...	1	9
Reaping, two men for one day, at 2/- ...	4	0
The crop was supposed to be 1,000 lbs. set aside 200 lbs.		
and pay women at 2/- per 100 to peel balance and to		
attend to drying at intervals. The price is really 2/-		
per 100 lbs. of peeled wet ginger, and about 1/5 or 1/6		
of weight is lost in the process of peeling, say 5/6ths		
of 8 at 2/- ...	12	8
Extra handling and taking to depot, say ...	2	4
	38	0

This figure is the estimated cost for 200 lbs., and to keep it at this figure, keen supervision must be given and labour prices kept low.

If the yield is bad, one might get only 100 lbs. ex the square chain, costing from 35/- to 40/-.

Planters who hire labour generally turn out a better ginger than the man who plants one square chain only and does all his own work.

NOTE: 38/- is net. To obtain gross, add 200 lbs. green ginger at 8/-

making 54/- ... for 200 lbs.
27/- ... per 100 lbs.

BUY THE SOCIETY'S SEEDS.

RECENTLY I came across a small holder who had planted 4,000 heads of cabbage. He had prepared his land excellently and had had very good seasons. He made the vital blunder, however, of buying his seeds from a seed dealer in the district. Not one of his 4,000 cabbages came to anything. The seeds which he got developed into a kind of swede, quite unsuited to Jamaica.

I saw him busy digging these out for feeding rabbits and donkeys.

A. T.

"Pioneer"

*The Best Feed
For Every Need*

Poultry:

From 1 to 6 or 7 Weeks old

PIONEER CHICK MASH

PIONEER CHICK SCRATCH

From 6 or 7 Weeks to 4½ or 5 Months

PIONEER GROWING MASH

PIONEER DEVELOPING SCRATCH

From 4½ or 5 Months on

PIONEER LAYING MASH

*For Egg
Production*

PIONEER SENIOR SCRATCH

*For Table
Use Broilers
and Capons*

Feed same as above but use PIONEER BATTERY Chick Mash in place of Pioneer Chick Mash and PIONEER FATTENING MASH in place of Pioneer Growing Mash and Pioneer Laying Mash

Turkeys:

From 1 to 6 Weeks old

Pioneer TURKEY Starter

From 6 Weeks old on

Pioneer TURKEY Grower

Pigeons:

Pioneer PIGEON FOOD



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WHOLESALE FROM

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RICE THRESHING BOX.

Designed by

MR. W. R. S. LADELL.

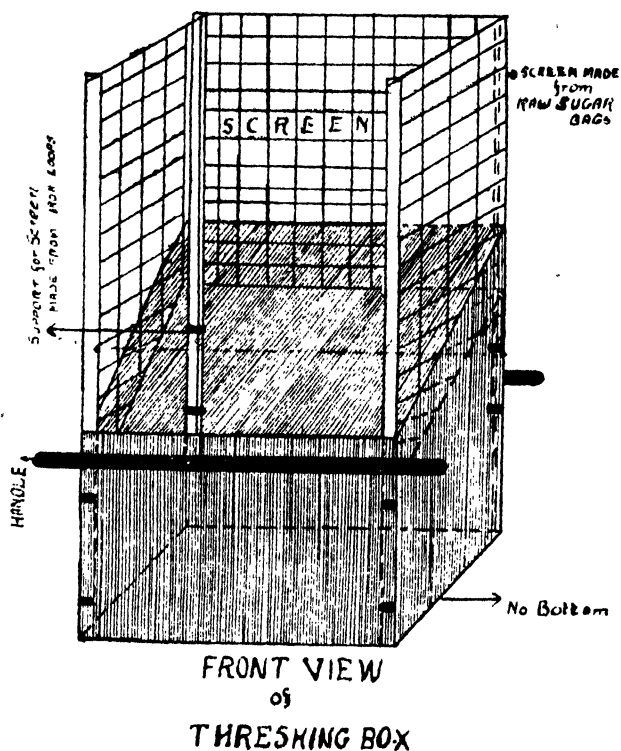
Plan No. 1 shows the front view of threshing box.

The box has no bottom and is placed on a tarpaulin.

The Screen is made out of raw sugar bags cut down one side and tacked to four posts which are then placed into the box and supported by brackets made out of iron hoops.

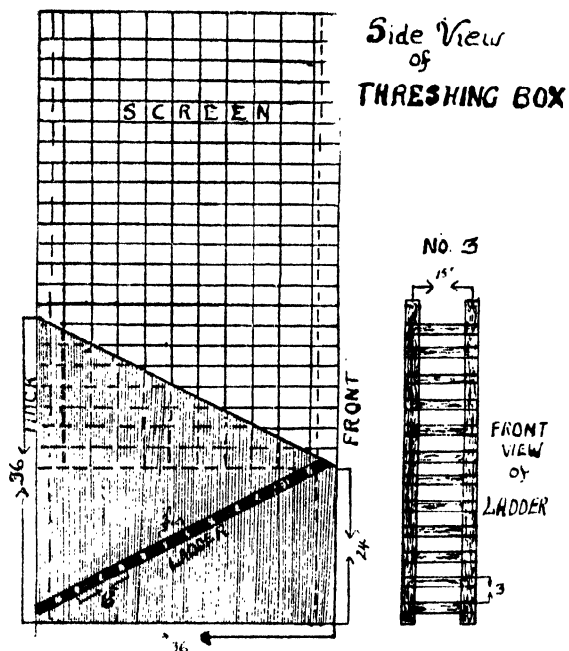
Plan No. 2 shows the side view of the threshing box and also the position of the ladder. A front view of the ladder with measurements is also shown beside plan.

It is deemed advisable to use hardwood in the construction of the ladder as it was experienced that ordinary wood would not stand up to heavy threshing.

NO. 1**Directions For Use.**

The rice is cut about twelve inches from the ground to allow the beater to have a good hold on the stalk in beating the dahn against the ladder which is placed in the box as shown on plan No. 2. The screen prevents the rice from scattering when the dahn is hit against the ladder. When the box is half full, it is removed by handles to another tarpaulin where threshing is continued while the rice just threshed is gathered in bags.

NO. 2



THE OLD METHOD.



BEATING RICE FROM THE STALKS.

Small hand machines are now sold by the Society for hulling Rice.

BIRD-LIFE IN RELATION TO AGRICULTURE.

By C. M. A. ROBOTHAM, Agricultural Instructor.

THE birds of a country play a significant part in afforestation, and in the destruction of insects that parasitize animals as well as affect plant life adversely. In some countries birds are even the suppliers of valuable organic manure.

An American Professor has been credited with the assertion that the greatest of all wars will be that waged between man and insects. Even now that war is being waged. On the one hand money is being spent the world over to produce machinery and insecticides for the fight, while on the other hand countless millions of insects are carrying on their relentless depredations. The small farmer with his hand pump, the large planter with his power sprayer, the entomologist with his scientific lore, all play their part, and even the birds of a country join issue and tend to tip the scales against the insects.

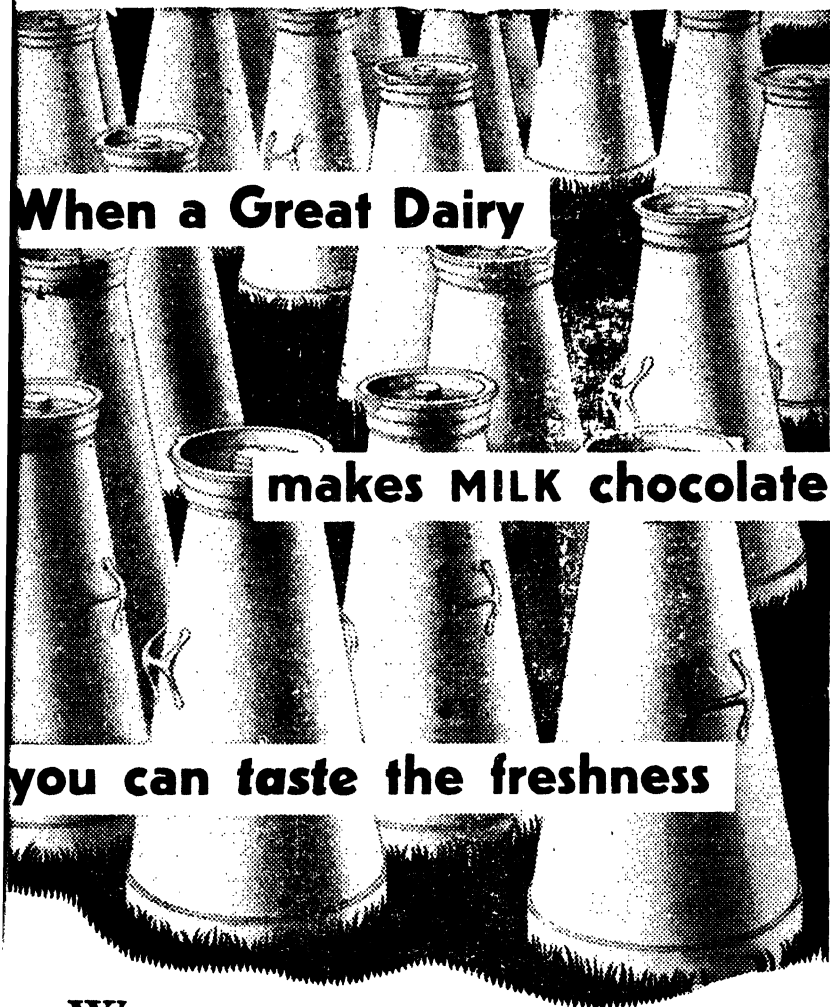
To enlarge on our local experience, watch the agility of the Black Bird as it quickly dodges in and out among the hanging, dried banana leaves and emerges with a banana-scarring cricket. At other times see him in pursuit of a black cricket over the newly-ploughed field.

Equally diverting is the Nightingale's earthward dive to snatch a caterpillar or beetle from the grass and then return aloft. Observe the Hopping-Dick in the cool of the evening winging its way with a cutworm in its beak, after diligently scratching at the roots of the young cabbages. Or see the dexterity of the Logger Head among a swarm of butterflies on the wing. The humbler Chic Chic devours an appreciable number of those tiny caterpillars that frequent the backs of the foliage leaves of a large number of plants. Nor is the Cling Cling entirely deserving of the pernicious traits usually ascribed to him. Recently a planter in the Dry Harbour Mountains of St. Ann despaired of his sweet potato crop owing to a heavy infestation of potato bugs. His field eventually received some surprise visits from a flock of Cling Clings and soon there were no more potato bugs. The Wood Pecker pommelling in the woods, the Tom Fool, the Bean Bird, the John-to-Wit—all play their part in the destruction of insects.

In some cases birds attack crop plants as well but it should be remembered in extenuation that many forest plants that would provide sustenance for our feathered friends are destroyed by planters from year to year.

It might seem rather cryptic to say that birds play a significant part in the afforestation of a country. But to see the point we have only got to ask ourselves what percentage of the pimento trees now growing in this Island was planted by human agency. And in addition there are numerous timber seedlings growing from seeds dispersed by birds.

We view with a great deal of pleasure the measures employed by the Forestry Department for the protection of bird life in the Crown Lands, and we should welcome legislation for Island-wide protection. Schools and Juvenile Branch Societies have great opportunities in their Nature Teaching programmes. The "boy on the street" with his "sling shot" is an enemy of harmless birds and needs to be checked no less than the mongoose and the rat that so often play havoc with nestlings and nest-eggs.



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When the world's biggest dairy makes milk chocolate, there's no need to stint the milk . . . either in quantity or in quality. Milk fresh and pure and abundant, milk thick with cream and goodness from England's dairy shires No wonder Nestlé's chocolate has a fresher, richer flavour ! The creamy taste the children love is the taste of English cream.

NESTLÉ'S
*m***ilk chocolate**

AVOCADO CULTURE*

IN its native home, tropical and semi-tropical North and South America, the avocado (*Persia americana* Mil. and *P. drymifolia* Ch. and Sc.) is an important food of the inhabitants. In the Philippines, however, it is still considered a luxury fruit since the present price is not within the reach of many. Of the many species and varieties of fruit trees introduced into the Philippines, none has gained so wide a reputation within a short time as the avocado. Although it is said to have been brought into the Philippines from Mexico in 1890, yet it was not successfully grown here until 1903 from planting materials received from Hawaii, Costa Rica, and the United States. The Bureau of Agriculture (now the Bureau of Plant Industry) began the distribution of avocado in the Philippines in 1913, and with the co-operation of the College of Agriculture of the University of the Philippines, it is able to produce many avocado trees bearing fruits in many provinces. Approximately 22,000 trees are now found growing in the Philippines, 4,500 of which are already bearing fruits.

VARIETIES.

Avocado trees vary in habit of growth; some are tall with short lateral branches while others have spreading branches. The leaves are usually medium thick and leathery, and they vary in shape and size. The flowers are borne in compact panicles generally at the end of the twigs. The fruits are variable in shape, size, and colour. The surface colour of the fruit, when ripe, varies from light green to dark green, purple, brown, red, crimson or maroon. The rind may be thin and delicate to thick and leathery and enclosing a large seed. The pulp is very nutritious, rich in fat, appetizing, with nutty flavour, and of a buttery consistency. There are three avocado races, namely, the West Indian, the Guatemalan, and the Mexican types. Each of these types requires a different elevation for its development and possesses different characteristics, as follows:

West Indian.—The fruit of this type has a poor shipping quality, loose-fitting, and with rather large seed. According to Stahl they contain from 4 to 7 per cent. fat. The skin is medium thick and is always smooth and leathery. The seed coats are usually separated, and the cotyledons are rough on the surface. The fruit stems are short. The Philippine grown varieties under this type are the Pollock, Family, Cardinal, Wilson, Waldin, Wester, and Baldwin.

Guatemalan.—This type has a thick woody rind, producing dull, large, and rough fruits. The seed is small and invariably tight-fitting; the fruits are of good shipping quality, the meat of which is drier than that of the West Indian. The surface of the cotyledons is smooth. It contains more fat (from 10 to 13 per cent.) but less carbohydrates. The fruit usually is borne on long fruit stem. The young leaves are frequently reddish or bronze in colour instead of green. The Dickinson, Lyon, Tertoh, Taft, and Tumin are the varieties of this type already cultivated in the Philippines.

Mexican (*Persea drymifolia*).—The foliage is anise-scented, small, and sharp at the apex. The fruit is small with thin, smooth rind which generally adheres to the pulp and is of purplish black in colour.

*By F. G. GALANG—In the Philippine Journal of Agriculture.

It contains a higher percentage of fat (from 12 to 15 per cent.). The seed is large with thin coats which are either separated or adhering to the cotyledons. The surface of the cotyledons is smooth. The varieties under this type that are already grown in the Philippines are Ganter and Puebla. Seeds of the Gottfried and Northrop were successfully introduced in 1924.

In planting avocado, one of the most perplexing problems is the choice of the right varieties, and this is due to a considerable variation in the productiveness of avocado trees. Some trees profitably bear fruits every year; others, only in alternate years; others do not bear any fruit at all. Many varieties fail to bear fruits satisfactorily owing to lack of pollination brought about by the failure of the flowers to open at the proper time or to the incompatibility of the pollen itself. Generally, fruit bearing in avocado will be more successful if compatible varieties are inter-planted and if their flowers open at such time as will permit cross-pollination, or if self-compatible varieties are planted, the opening periods of flowers overlap. However, the varieties to be interplanted should have approximately the same flowering time—early varieties should not be interplanted with late varieties and *vice-versa*. The midseason varieties can be interplanted with either the early or late varieties.

Of the hundreds of varieties now planted in the United States, not a single one has so far been selected that gives all the desired qualities. Each has some defects. And these varieties will have to be replaced eventually by a more desirable variety, or strain. In the Philippines, numerous seedlings and named varieties have already been imported and planted. Of those that have so far fruited, some are good, while others produce small fruits of poor quality. Moreover, many had failed to maintain themselves under local conditions. Altogether not less than one hundred varieties and strains of avocado have already been introduced, out of which about forty varieties are surviving and seventeen are bearing fruits. However, according to the list of avocado varieties given in the 1929-1930 Annual Report of the California Avocado Association, there are 342 varieties, classified as follows: 62 Mexican, 78 West Indian, 152 Guatemalan, and 50 unclassified. In addition a score or more varieties and strains are fast developing in the United States and elsewhere. Therefore, aside from the varieties already found growing in the Philippines there are many more varieties and strains which merit further planting and introduction. Nevertheless, until new varieties, or strains, have proven to be superior and especially adapted to local conditions, the Philippine grown avocado varieties, which have fruited for several years, should be given preference in starting an avocado orchard. Of the many varieties that have been introduced and distributed, only a few have so far gained popularity. The Cardinal, Pollock, Lyon, Wester, Tertoh, Family, Cummins, Commodore, Cyrus, Quality, Douglas, Vega, and Miami have fruited successfully in Lamac, Bataan, and elsewhere in the Islands. But due to the limited extent of their trial, their selection should not be considered final. The Cardinal has predominated, however, probably because of its productive habit under certain soil and climatic conditions.

When selecting the varieties to be planted, one should be guided by the following points: The trees should be hardy, productive, regularly bearing, disease-and pest-resistant, early-or late-bearing; the fruit should be of good flavour, quality, and size; and the seed should

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be comparatively small. It should be borne in mind that the fat content does not indicate a good quality, for in the United States the most prized varieties are poor in this respect.

REQUIREMENTS.

The avocado is distinctly tropical and subtropical in its requirements. There are now avocado trees growing in widely separated localities in the Philippines, and the behaviour of these trees clearly indicates that the plant is at home in this country. In localities where the dry season is not too long, they thrive with very little attention. However, when the dry season extends to four or five months, they require some irrigation unless the soil moisture is within the reach of the roots during the driest part of the year.

The tree is not exacting in its soil requirements so long as good drainage is afforded. It is very intolerant of standing water, and cannot endure it for any length of time. Deeply and well-drained soil, which is rich in organic matter, is the best for avocado, but well-drained heavy soil of average fertility will also grow good avocado especially in moist regions. Any soil where citrus trees thrive will produce good avocado trees.

Like most other fruit trees, the avocado does not thrive well in places exposed to strong winds. Its leaves cannot quite resist excessively hot, dry winds. Besides, winds increase the evaporation of water which in turn may cause a heavy dropping off of immature fruits. Also the fruits are liable to suffer injury through rubbing against the branches or against each other, and the danger of the breakage of limbs, especially those heavily loaded with fruits, is increased. However, this is not a limiting factor in avocado culture, because it can be remedied by planting windbreaks in places where there is no natural protection from the winds. Windbreaks reduce the air movement and so diminish evaporation. Windbreaks should be planted around the orchard; if the plantation is large, windbreaks should be planted in every hectare lot.

The West Indian varieties are very tender, and are best adapted to low and medium elevations up to 900 meters above sea level. The Guatemalan varieties are rather intermediate, and have wider range of adaptability. They can be grown from sea level up to an elevation of 2,500 meters, but an elevation of not more than 700 meters is the best. The Mexican varieties are the hardiest with respect to cold weather, and have a wide distribution. They thrive best from 600 meters upward.

PROPAGATION.

The avocado is propagated by seeds, by budding, grafting, inarching, or marcotting, but preferably by budding and grafting. Inarching and marcotting are too laborious and expensive. Grafting sometimes gives a better result than budding. The grafted plants are oftentimes more vigorous than the budded ones. On the other hand, trees grown from seeds usually do not come true to type. The chances of obtaining a fruit of better quality than that produced by the parent tree are very slim. It is the experience of avocado growers that seeds are unreliable means of reproducing a variety. However, if seeds have to be depended upon for the propagation of avocado, the seed of some avocado varieties may be carefully halved so as to produce two plants from each seed. The resulting plants, however, should be given a reason-

able dose of fertilizer in order to produce good growth. Generally the whole seed germinates earlier, and the resulting seedling is more stocky and has more number of leaves than the halved seed.

The first step in the production of budded or grafted trees is the raising of the stock plants. In the United States the varieties of the Mexican type are commonly used as stock plants because of their greater hardiness against frost than the large-seeded and hard-shelled varieties in spite of the greater amount of plant food in the seed of the latter. But this type possesses a wide range of variability, and caution should, therefore, be taken in using it as a stock plant in the Philippines. On the other hand, the West Indian seedlings, being generally more vigorous than the other types, may prove good stock plants at lower altitudes in the Philippines, although they were proven less successful as scion for the Mexican stock. The Guatemalan type will succeed both the West Indian and the Mexican stocks. This type is vigorous and thrifty, but somewhat tender although less so than the West Indian. Fuerte, a hybrid between Guatemalan and Mexican types is much used as stock plant in the United States nowadays.

As the seed of the avocado loses its vitality quickly, it should be planted while it is still fresh. And if the seeds cannot be planted at once, they should be stored in properly moistened sand, sawdust, charcoal, or sphagnum moss. The seeds may be planted directly in bamboo pots or in seed beds with the pointed end up. About one-fourth of the seed should be left exposed so that the resulting sprouts can be thinned out, leaving the strongest one. Set the seeds 40 or 50 cm. apart in the seed beds. In potting, the soil should contain one-third each of sand, loam, and well-rotted compost. If sown in seed beds, the soil need not be so rich—a sandy loam soil being sufficient. It is sometimes advisable to grow the seedlings for budding or grafting in the seed beds although it will require more labour to remove them properly when transplanting them in the field. Seeds should not be allowed to dry out, otherwise they will lose their viability.

Budding or grafting is done in the same way as in citrus or other fruit trees. It can be done any time the stem of the stock plants has attained the size a little larger than a lead pencil provided it is not raining and that the seedlings are in condition, that is, the sap is flowing freely. The scion should be selected from the best tree of the desired variety, should be well matured, preferably from twigs which are just ready to send out a new growth, and should contain plump and well-developed buds.

Avocado stem is very brittle so that in forcing the bud to grow, a notch should be made of a few inches above the bud instead of cutting the stem half-way into the wood of the stock for lopping as in the case of other fruit trees. In lopping never bend the stock as in other fruit trees in order to avoid a premature breaking. When the scion is already well advanced, the top of the stock may be cut off entirely about 10 centimeters from the bud. After the bud has grown to a length of about 25 cm., the stock should be cut off clean just above the union of the stock and the scion, and the cut surface should immediately be painted with white lead or other suitable materials. This will protect the wood from decay.

PLANTING.

When the plants are about 50 cm.,* high or more, they can be transplanted in the field at the beginning of the rainy season, at a distance of about 8 to 10 meters* apart in holes large enough to accommodate the plants. Set the plants as deep as they grow in the nursery, and use good surface soil for refilling the holes. The soil should be packed firmly around the plant. It is well to pour in water while firming the soil. If water is available, planting may, of course, be done late in the rainy season, and even during the dry season. In transplanting, great care should be taken so as not to injure the root system which is very delicate, and the roots should never be exposed to dry or else the plants will die. To avoid the least injury to the roots, the plant should be dug from the nursery with a ball of earth. In planting balled trees, it is necessary to remove the sack or wrapping materials from around the ball of earth as the sack will decay in due time. However, to facilitate the rotting and the penetration of water, two or three cuts should be made at the sides with a sharp knife. Split and remove the pot in transplanting the potted plant. Cut one-half of the leaves or young twigs of the plant previous to transplanting. The newly transplanted plants should be watered and mulched from time to time as may be necessary. In watering, a basin should be made around the tree to hold the water. Shedding the newly transplanted plant is necessary if planting is made during the dry season. Care should be taken that varieties are planted together which will provide pollen for each other at the time when each is ready for pollination.

ORCHARD MANAGEMENT.

A modern fruit tree orchard should be well cultivated, irrigated, fertilized, cover-cropped, pruned, and mulched from time to time. The cultivation of young avocado orchard is done in the same way as in citrus, that is, deep plowing is advisable at the beginning; but when the trees are already big, deep cultivation should be avoided as much as possible, otherwise there is danger of destroying part of the root system and exposing the soil. At this stage the tree can be kept clean by occasional hoeing of the ground near its trunk. Mulching the trees and planting cover crops between the spaces are beneficial for the upkeep of the trees, since both prevent soil erosion and replenish the nitrogen and organic matter of the soil. Legumes have the power of gathering free nitrogen from the air and storing it in their nodules, and are, therefore, more valuable as cover crops than non-leguminous plants.

In order to get the most profit from the trees, it is always a good practice to maintain the fertility of the soil. To accomplish this, fertilizers should be applied regularly to bearing trees. There is a wide diversity of soil in the Philippines so that to give advice regarding the kind and amount of fertilizer without knowing the condition of the soil is almost futile. However, the kind of fertilizer needed by avocado is probably not very different from that needed by other fruit trees although the amount may differ. And in the absence of experimental data no definite and specific information can be given. The condition of the tree and of the soil should be the determining factor as to the kind and quantity of fertilizer to be used.

*10 Meters=10 Yds. 3 ft. 3 $\frac{1}{4}$ inches approx.

50 cm.=20 ins. approx.

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A young tree requires very little, if any, commercial fertilizer until it begins to bear fruit heavily. Animal and poultry manures and nitrogenous commercial fertilizers are, however, beneficial to young avocado trees. A complete fertilizer which is low in nitrogen and high potash is good for fruit-bearing trees. In the United States a mixture containing 5 per cent. nitrogen, 7 per cent. phosphoric acid and 2 per cent. potash, the nitrogen being derived from organic materials, has given good results on young trees when applied at the rate of one pound per tree, three or four weeks after planting, and 8 to 10 pounds on five-year old trees. The percentage of potash is increased while the trees come into bearing—5-8-3 or 6-6-3 in spring; 4-8-10 in the fall, and 4-7-5 or 5-5-5 in summer.

As a general rule, avocado requires little or no pruning at all after the tree is properly established. However, inasmuch as the avocado plant is naturally weak and brittle, the pruning of forking branches and shortening of young and spindling twigs may be done to strengthen the stock and the framework of the growing tree. This is to be done at their dormant stage. The mere pinching of undesirable shoots may induce the growth of other buds where an extension is needed in order to make the trees more or less symmetrical in growth. Tall growing trees should be pinched back. Again, some thinning of the branches should be done from time to time so as to permit sunlight into the inside foliage. Of course, any heavy pruning should be avoided, as this will greatly accelerate the vegetative growth and delay the fruiting period. Only dead and undesirable branches should be removed after the fruits have been harvested. All wounds should be painted with white lead or other suitable materials to avoid rotting.

In places where there is a uniform distribution of rainfall, the avocado need not be watered at all, but in places where there is a prolonged dry period, watering is necessary unless the ground water is high or is within the reach of the roots. The water may be distributed in the way which is most convenient, economical, and effective. The furrow system of irrigation should be practised on big plantations whenever it is practicable for the sake of economy, and the bucket system may be used for watering the individual trees around the house. Where there is lack of water in the soil, the trees may shed much of their foliage, flowers, or fruits.

It is often advisable to top-work undesirable trees in the orchard to a good variety. This can be done by cutting the tops back including the big branches. Of the numerous sprouts which appear, only a few good ones should be left for budding or grafting with selected scions. The cut surfaces and the trunk should be painted and whitewashed in order to protect them from decay and sunburn.

PESTS AND DISEASES.

There are comparatively few insect pests and diseases which at present affect the avocado in the Philippines. Among the insects, the borers and the scale insects, including mealy bugs, are found destructive to our avocado trees. Other pests are the thrips, caterpillars, and white ants.

The borers are found to attack the trunk, pith, and twigs. They work their way downward destroying all growth thereby and may eventually kill the tree. Lime wash may lessen the infestation.

The caterpillars attack the leaves and flowers. They can be controlled by spraying either with lead or calcium arsenate.

The thrips attack the flowers, but they can be prevented by dusting with pyrethrum, derris powder, or tobacco dust.

The scale insects suck the sap of twigs, leaves, and fruits. Heavy infestations weaken the tree, and sometimes cause premature falling of fruits. Oil emulsions and soap suds are usually effective in controlling the scales.

The important diseases of avocado are die-back and anthracnose. The anthracnose is a disease of the leaves, bark, and fruit. The affected portion turns black with sunken spots, usually circular in form. It can be controlled by spraying with Bordeaux mixture. The infected parts should be cut and burned.

The die-back is a disease of the twigs. The infected parts become dry. It can be prevented by spraying the trees with lime sulphur or Bordeaux mixture. These sprays should be applied periodically once every two weeks at least as the new flushes appear until they mature.

Other diseases of minor importance which may also be controlled are the scab and the leaf spots.

HARVESTING AND YIELDS.

The avocado season in the Philippines is from January to March and from June to September, depending upon the climate of the locality. In humid districts the season is rather early. There are, therefore, only two short periods in the year during which avocado fruit is not obtainable in the market—from April to May and from October to December. However, by planting varieties which fruit at different times of the year, it is possible to produce avocado fruits all the year round. In the United States the Fuerte variety is said to be fruiting from November to May; Verde from March to May; Puebla from November to December; and Taft from May to November.

Avocado trees grown from seedlings begin to bear fruits when about four to eight years old, six being the average. On the other hand, vegetatively grown trees sometimes begin to bear fruit the first year in the nursery. At this age, however, and probably up to three years, they should not be allowed to fruit at the expense of the future growth and vigour. The annual yield of a full-bearing tree ranges from a few to 500 fruits—sometimes from 800 to 1,200 fruits. An average of 500 fruits a year per tree is considered a fair yield. Generally the yield varies from one season to the next, partly depending upon the size of the previous crop, rainfall, winds, and the conditions of the tree at the flowering season.

The avocado fruits are very perishable and should be handled with care. In harvesting, the fruits should be carefully clipped off, leaving a short stem on them for handling purposes. A fruit picker provided with a knife similar to that one used in picking the mango fruits should be used in harvesting the fruits of tall growing trees. Furthermore, the avocado should be harvested when fully matured, and not allowed to ripen on the tree. The maturity of the fruit is indicated by its colour. For example, the appearance of reddish streaks in the case of purple fruiting varieties and the change of colour from green to a lighter green in the case of green varieties are indications of maturity. In the thin-skinned forms the ripeness of the fruit can be determined by external pressure, but in the very thick-skinned varie-

ties this cannot be done. The ripeness of the fruit of the latter varieties can be determined by the stems when it is easily pulled out of the fruit, and when a toothpick can be easily pushed through the stem it indicates that the fruit is ripe enough for eating. If the fruit is picked before reaching maturity, its flavour is poor, while if left too long on the tree, the keeping quality is impaired. The fruits should be placed in a basket or box lined with packing materials, such as dried straw, banana leaves, etc., when intended for short distance shipment; when the fruits are to be shipped long distances they should be wrapped individually with soft tissue paper.

USES.

The avocado fruit is rich in fat and protein but low in sugar content. Its oil is similar to olive oil and can be used for the same purposes. It has been known in countries where avocado has been long grown that its fruit is a wholesome and highly digestible food. Wolfe and others said that an ounce of avocado contains about 73 calories, which is nearly three times that of banana, one and a half times that of beefsteak and other meats, and three times that of several kinds of fish. And because of this and its low carbohydrate content it is a good food for diabetic people. Its iron content is about three times that found in other common fruits and, therefore, it is a good food for anemic people.

In the Philippines the fruit is eaten with sugar and milk, or in frozen form, or as ice-cream ingredient. Few people eat the meat offhand. In the United States it is extensively used as a salad fruit because of its delicate, nutlike flavour, and its smooth, buttery consistency. The avocado should not be considered merely as a salad fruit but as a substantial food which may be used in a great many combinations. It is also eaten offhand, with the addition of lime or lemon juice, or salt, or sugar only. Mashed and seasoned, the meat is used as sandwich filling, or is spread on salted crackers. Often it is also added to soup just before serving. A number of recipes on how to eat avocado fruit has been published from time to time.

CHINESE BEE-KEEPING.

By W. F. TYLER.

IN a state of nature bees build their honey comb beneath the brood; so the Chinese, adopting nature's ways, lift the brood box and place a 'nether' underneath it instead of a 'super' on the top.

As a youngster I was associated with bee-keeping, and my recollection is that a week would elapse before the bees got busy in the super, because—so I say—their instinct was adverse to going upstairs for honey comb purposes. Thus a week, say, of the honey-flow was wasted.

I have suggested to several bee-keepers in England that they try the Chinese method, but without avail: conservatism is too strong. Yet in the days of straw keps nethers must apparently have been used; and I have a recollection of old fashioned bee-keepers saying that more honey was got from keps than from the new fangled wooden boxes.

I understand that the Society has an experimental apiary. How would it be to experiment with the Chinese method there, using a separator between the brood and the rether?

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LIVESTOCK IN THE WEST INDIES.

By J. W. HOWE, Dip. Ag., B.S.A., M.Sc., Headmaster Government Farm School, Superintendent Government Stock Farm.

(Continued.)

BUILDINGS ON THE DAIRY FARM.

The type of building used for dairy herds in the Tropics is usually one which is of cheap construction yet serviceable. The prime consideration in constructing buildings for dairy cattle is to provide shelter from sun and rain, and yet keep the animals as cool as possible.

With the heavy rains which fall in a tropical climate, good drainage is very necessary and all buildings should be located on high land which is readily drained. The building should be large enough to accommodate all the animals required at one time, and should allow ample room to prevent crowding.

The Dairy Building.—This is the main building, and the one in which the herd is housed while being milked. Accommodation should be sufficient to provide for the whole herd being housed at one time, as milking the herd in relays not only takes more time but requires more labour.

The space allowed for each cow should be large enough so that an animal can lie down in comfort without disturbing the animals next to it. The floor should be made of concrete or stone, and should have a gutter provided behind the cattle, at least 18 inches in width, with a fall for drainage of 1 inch in 20 feet. The stalls for the cows should be from 3 feet 6 inches to 4 feet wide, depending on the size of the cattle. The length of the stall from the manger to the edge of the gutter should be 4 feet 6 inches, for cattle of the smaller breeds such as the Jersey, to 5 feet 6 inches in the case of the larger breeds such as the Holstein-Friesians. The manger should be also made of concrete and should have a width of 2 feet 6 inches, and a depth of 6 inches on the side nearest the animal. The other side of the manger should be 2 feet 6 inches in height, with a width of 3 inches.

The passage-way between the rows of cattle should be at least 7 feet, and should have a surface higher in the middle than where it meets the gutter, in order to facilitate drainage when the floor is being washed.

The uprights supporting the roof of the building may be made of hardwood sunk into the concrete, or pitchpine placed on hardwood footings. Woods of the soft varieties should never be placed into concrete, as rot will take place in a very short time, and they will have to be dug out of the concrete and renewed.

The roof should be made of either shingle or galvanized zinc roofing. The latter is hotter than shingles, but if the roof is placed high enough there will be enough breeze through the building so that the animals will not be affected.

If a good water supply is available, the water can be piped directly into the building and the cows watered by means of cups. One cup to two cows serves well, but care must be taken to see that the cups are so placed that they are easily accessible to both animals.

Calf House.—Provision should be made for housing the calves, as young calves especially, need shelter from rain and sun if they are to keep in a thrifty condition. The calf house can be attached to the dairy building, which will facilitate the feeding, and require less labour in their general care.

It is advisable to have the calves stanchioned, rather than having

them loose in a stall. By having each calf in a stanchion, it can be fed the full ration of milk without interference from the other calves. Having the calves in stanchions also allows for the calves to be placed in order of their age, and consequently feeding will be facilitated.

The calf house should be constructed after the style of the dairy building, with ample provision made for drainage. Arrangements must be made for proper cleaning, as the calf house must be kept scrupulously clean in order to prevent scours.

Bull Stall.—The stall or pen in which the dairy bull is kept must be dry, strongly constructed and must be cool. Ample room must be provided to enable the animal to move about freely, and a pasture or paddock should be attached to the stall in which the bull can take exercise. Care must be taken to see that the fence enclosing the paddock is strong, in order that the bull cannot break out.

Milk House.—A milk house is very necessary where dairying is being done on any scale, and should be near the main dairy building in order to receive the milk as it is drawn. For those dairymen who weigh the milk at the time of milking, such weighing can be done in the milk house and the weights recorded.

The milk house should be screened, and should be fly-proof. It should be thoroughly washed after every milking, and should be kept clean at all times. The milk room should not be used for any other purpose than for the receiving and handling of milk.

Conclusion.—From the discussion on dairy cattle it will be clearly seen that dairy farming is a specialized business and one which requires expert management in order to succeed. It is only for the man who is willing to work seven days a week, that such a branch of agriculture will hold any interest, but there is no doubt that dairying in the West Indies, has yet not begun to progress the way it should. When the proper progress and improvement is made, dairying will take its rightful place in the agricultural programme. Dairying more than anything else, will assist in bringing about a balanced agriculture, which is so much needed in the agriculture of the West Indies to-day.

CHAPTER VIII.

BEEF CATTLE—TABLE

Table showing Size, Native Home, and Colour of the main breeds of Beef Cattle.

Breed.	Size (in pounds)		Native Home.	Colour.
	Bull.	Cow.		
Aberdeen-Angus ..	2,000	1,500	Scotland	Black
Hereford ..	2,200	1,700	England	Red and white.
Shorthorn ..	1,900	1,500	England	Red, red and white, white or roan
Devon ..	1,800	1,400	England	Red
Galloway ..	1,800	1,300	Scotland	Black
West Highland ..	1,200	900	Scotland	Black, red or brindle.

DESCRIPTION OF THE MAIN BREEDS OF BEEF CATTLE.

Aberdeen Angus—The Aberdeen-Angus breed is one of the outstanding breeds of beef cattle, and is to be found in comparatively

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large numbers in the West Indies. The origin of this breed is obscure, but the breed is thought to have descended from the Wild Cattle of Britain, the present breed being a sport from a black breed with horns. The native home of the Aberdeen-Angus breed is the north-east part of Scotland in the counties of Aberdeenshire, and Forfarshire (now called Angus). It is from these counties that the breed derives its name.

In *general appearance* this breed conforms closely to the beef type, being low-set, rectangular and blocky. The *head* is polled, the *eyes* prominent and the face inclined to be broad and short. The *neck* is short, and well attached to the shoulders, while the *back* is level and strong, the *top-line* being carried out level to the tail-head. The fore-quarters are smooth with no coarseness and are well filled over the withers. The *body* is deep with a good spring of rib, and the *hips* are not prominent, being well laid in. The *rump* is often not as well filled as in other breeds, but is usually long and level. The *thighs* are usually deep and well fitted with a twist that is carried well down. The *legs* are short and the bone fine. In quality this breed is outstanding, and has a thin, mellow hide, with fine hair. The *colour* of the Aberdeen-Angus is black. White may sometimes occur on the udder of the cows and on the underline of the bulls, but too much white is objectionable. The *size* of this breed is on the whole smaller than the other breeds of beef cattle, but weighs remarkably well, the bulls averaging 2000 pounds and the cows 1,500 pounds. In *temperament* the Aberdeen-Angus is inclined to be more nervous than the other breeds, especially if raised under range conditions. In *maturing qualities* this breed leads all others and not only matures rapidly but produces an excellent carcass. It produces excellent baby beef. The *dressing percentage* of this breed is high, and the quality of meat produced is superior to that of other breeds. In *adaptability to conditions* this breed is excellent, and has proved to be one which does well under Tropical conditions, especially if crossed with the Zebu.

(To be continued).

MARKETING NOTES.

Quotations for local produce are as follows:—

Pimento	... ..	54/- per 100 lb.
Annatto	... Well cured, prime, red seed ...	14/- ,, ,,
Coffee	... Good Ordinary	28/- ,, ,,
	... Fine Ordinary	30/- ,, ,,
	... Manchester—B	30/- ,, ,,
	... Manchester—A	32/- ,, ,,
Cocoa	... Ordinary	17/- ,, ,,
	... Estates Fertd.	17/- ,, ,,
Honey	... Water White	2/6 per gall.
	... Pale Amber	2/- ,, ,,
	... Light Amber	1/9 ,, ,,
	... Dark Amber	1/6 ,, ,,
Kolanuts	... Well cured, sound quality	12/- per 100 lb.
Lime Juice	... Good, fresh, green, top-pulp ...	1/- per gall.
Orange Oil	... New Crop—Sound Quality	
	... —Sweet and Bitter	4/3d. per lb.
Sarsaparilla	... Well cured, red roots	35/- per 100 lb.
Wax	... Pure clear quality	10d. per 1 lb.

BRANCH NOTES.

All Reports received are acknowledged in this section of the Journal. Notes intended for publication should be written *on one side of the paper only*. [Ed.]

CLARENDON : Rock River, Rock River P.O.—Meeting held 7.2.89. Mr. F. A. Taylor presided. There were about 25 members present. A long discussion took place re the price for Small Settlers' Cane. It was felt that 10/- per ton was inadequate. The matter of Citrus and Banana cultivation came up for discussion. Land Settlement was dealt with. The present economic condition of the district was discussed. After the roll call, the meeting was brought to a close.

F. A. ROBOTHAM,
Secretary.

Ritchies, Spaldings P.O.—Meeting held 2.2.89. Present : The President, Mr. G. Donaldson; Secretary, 16 members, and Instructor Graham. The Land Settlement question was dealt with and it was decided that a letter be sent to the Land Settlement Commissioner. The Secretary read a letter from Teacher Allen re the formation of a Planters' Association at Ritchies. It was decided that he should be invited to the next meeting. There was an interesting debate—"Banana or Sugar Cane, which is the more payable crop to cultivate?" It was decided that the Banana was more payable. The Instructor gave a helpful talk on the borer—the harm it does, and how it can be dealt with and destroyed. The National Anthem ended the meeting.

W. E. MORRIS,
Secretary.

Rock, Osborne Store P.O.—Meeting held 25.1.89. Present : Mr. V. A. McKenzie, President; 32 members and 4 visitors. It was agreed that a letter be sent to the Parochial Board asking that the former road leading from Bell Pond through Gouldbourne be opened. Mr. T. C. Swainson, 1st Vice-President, was congratulated on his appointment as ticket distributor for the district. Mr. G. S. F. Manning, Delegate to the Half-Yearly General Meeting, gave his report. The meeting terminated with the singing of the National Anthem.

GLADSTONE S. F. MANNING,
Secretary.

Crooked River, Crooked River P.O.—Meeting held 18.1.89. Present : 13 members and 2 visitors, who subsequently became members. Mr. P. A. Bernard presided. Co-operative marketing was discussed. Other matters were discussed, including Dairy Industry, cattle rearing and a Ticket Distributor for the district. The meeting ended with the singing of the National Anthem.

O. H. WILLIAMS,
Asst. Secretary.

Elgin, Thompson Town P.O.—Meeting held 31.1.89. Present : Mr. Alexander Dunkley, 1st Vice-President, in the chair; 36 other members and the Secretary. Correspondence was read and dealt with. There was a lively discussion on the subject, "Cane or Banana—which is the more necessary to our economic life?" Several members spoke, and the majority, though admitting the usefulness of the banana, favoured cane. A suggestion to visit Hope Gardens was dealt with. The Secretary was instructed to make the necessary plans and submit them at the next meeting. Authorized Persons Sylvanus McKenzie, Oscar Harris and Ira Douglas reported. New members were proposed and elected. The agenda for the next meeting was arranged, and included a discussion on "What plants or Crops may be developed to take the place of the Banana should Leaf Spot and other diseases destroy the Industry?" The meeting terminated.

T. A. HALL,
Secretary.

Brandon Hill, Colonel's Ridge P.O.—Meeting held 16.1.89. Present : Mr. N. Bobotham, President; Mr. J. J. Pincock, 1st Vice-President; Mr. J. N. Simpson, 3rd Vice-President; the Instructor, 24 other members, and about 200 visitors. Six Authorized Persons tendered reports. The Roll Call was taken, after which five new members were enrolled. It was decided that a petition be sent to (i) the Hon. Colonial Secretary re the Improvement of the surrounding areas. (ii) the Hon. J. A. G. Smith re Relief Work. (iii) the Hon. B. H. Easter, Director of Education, pressing the need for a Government School for the Brandon Hill area. Valuable instructions were given by the Instructor. The meeting terminated with the singing of the National Anthem.

J. N. SIMPSON,
Acting Secretary.

Mt. Airey, Richmond Park P.O.—Meeting held 10th January. Mr. Rufus Dawkins, 1st Vice-President, presided. The chief features of the meeting were: (a) An appeal by the President for increased membership of the Branch. (b) Arrangements made for sending a delegate to the Half-Yearly General Meeting. (c) Nursery Bed in connection with the Demonstration Plot: Miss Idona Morrison was commended for tending and watering the bed. (d) A song by Miss Lena Falconer, Assistant Secretary, which was appreciated. (e) Report of Authorized Persons. One new member was enrolled. The roll call was taken and the meeting terminated with the singing of "the King."

(Miss) M. E. DAWKINS, Secretary.

Orange Hill, Frankfield P.O.—Meeting held 25.1.39. Mr. Felix Bryan presided. Present: 6 officers, 24 members and 9 visitors, four of whom afterwards became members. The Secretary, Mr. C. S. Ricketts, was welcomed, having recently recovered from a long illness. The financial standing of the Branch received full discussion. The need for early payment of subscriptions was emphasized; also the importance of reading the Journals. A full and interesting report of the meeting of the Parent Society was read. The Delegate, Mr. F. T. Bryan, was heartily thanked. Road improvement, Protection of water supply, Small cultivators co-operative Association, Dental Clinic for school children, Regular and punctual attendance at Branch meetings were all referred to and dealt with. The Authorized Persons gave their monthly reports, which showed that praedial larceny is not now as rife in the community as it had been. They were congratulated for their vigilance. Arrangements for the next regular meeting were made, and the National Anthem, sung lustily, brought the meeting to its close.

C. S. RICKETTS,
Secretary.

Sunbury, Spaldings P.O.—Meeting held 10th January. Present: Mr. P. Peart, in the chair; 20 members and the officers of the Branch. The Secretary was asked to issue invitations for the annual meeting on the 14th March. The meeting terminated with "the King."

N. KNIGHT, Secretary.

HANOVER: Welcome, Hopewell P.O.—Meeting held 27.1.39. Present: 19 members, and a number of visitors. Mr. J. H. G. Charley presided. The officers of the Branch were present. The question of the usefulness of a Packing House in Montego Bay was discussed, also the difficulty of procuring water in the event of spraying diseased bananas in the area. Delegates were appointed to go to the Land Settlement area at Cope. Re growing of marketable crops, members were requested to find out what could be grown successfully. They decided to take advantage of an Experimental Plot given by the President and to ask Instructor Hastings to give demonstrations on the growing of crops. Some members promised to grow Irish Potatoes. Roll Call was taken and the meeting was closed by the singing of the National Anthem.

(Miss) N. E. INNERARITY,
Secretary.

MANCHESTER: Hatfield, Mandeville P.O.—Meeting held 8th February. Present: Mr. Z. Myers, 1st Vice-President; 7 other members and 2 visitors. Regret was expressed at the illness of the President, Mr. A. R. Williams. There was a discussion of the Land Settlement Scheme and the procuring of a pruning set for the use of members. The chief points in the cultivation of Irish potatoes were considered. It was felt that the opening of a post office had been a great help to the districts around. The singing of the National Anthem terminated the meeting.

(Miss) G. E. BAILEY,
Secretary.

Mizpah, Williamsfield P.O.—Meeting held 9.1.39. Present: Rev. J. Kneale, President; Instructor Graham, 1 visitor, Mr. U. C. Wolfe, Secretary, and 11 members. The following matters were dealt with: (a) Duster Fund—Further subscriptions received. Members asked to make good their promises. (b) Agricultural Exhibition Easter Monday, 1939. Plans for this were discussed. A committee was formed to deal with the matter. It was decided that the Hon. Member for the parish be asked to open the Show. (c) Experimental Plot: It was decided that the Yellow Corn be reaped on the 16th. The next crop would be Irish potato. The Secretary was asked to order 150 lbs. up to date seed potatoes and 75 lbs. fish manure. The Instructor suggested new projects to take the place of old ones becoming unreliable. Poultry rearing was stressed and the necessity for good breeds. The Instructor was thanked for his remarks. Report on Ram: fine condition. A rough estimate of the droppings during the first year of service fixed the number at 60. The meeting adjourned with the singing of the National Anthem.

U. C. WOLFE,
Secretary.

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JAMAICA.

PORTLAND: Bybrook, Skibo P.O.—Meeting held 9.2.39. Present: Instructor Wilmot, 19 members and some visitors. The Report of the Delegate to the Half-Yearly General Meeting was read. An address was given by the Instructor. Arrangements were made for the annual meeting to be held during April. The meeting terminated by the singing of the National Anthem.

(Miss) I. M. FACEY,
Acting Secretary.

Mahoe, Bangor Ridge P.O.—Meeting held 19.1.39. Present: Mr. D. Jackson, 1st Vice-President; Mr. J. Boyd, 2nd Vice-President; Miss W. Boyd, Asst. Secretary; Mr. J. O. Grant, Secretary; 10 members and 4 visitors. Letters from the Hon. Member for the parish and from the Parent Society were read. The Secretary addressed the meeting, and advocated the growing of foodstuffs. He was heartily thanked for his interesting address.

J. O. GRANT,
Secretary.

Rock Hall, St. Margaret's Bay P.O.—Meeting held 17.1.39. Present: 10 members and the Secretary. Mr. Reuben M. Scott, 2nd Vice-President, presided. The Secretary explained (a) that resolution re Prize Holdings Competition had been accepted by the Parent Body. (b) that the Branch was well represented at the meeting of the Portland Branches Associated, and most of the resolutions submitted by the Branch had been accepted; (c) that Mr. Patterson's motion re Deputation to the Parochial Board be deferred. Mr. Gardiner raised the question of Roads, particularly of the Content Road, and explained why work on that road had been stopped. Two Authorized Persons present reported continued vigilance. The Secretary gave a full and concise report of the Half-Yearly Meeting of the J.A.S. He was heartily thanked. A discussion arose over the question of Standard Weights and Measures, and the meeting unanimously adopted Mr. Gardiner's resolution, viz: "Resolved that this meeting desires the Board of Management of the J.A.S. to ask Government to see that the standard weights and measures as fixed by law be respected by both buyers and sellers." It was decided to ask the Hon. Member to fix a date, convenient to him, when he could be in the district for the opening of the finished portion of the road. The Secretary's address on Thrift was well received. Mr. J. W. Dunn, Senior Vice-President, wished all present a happy and prosperous 1939. He pointed out improvements he had noticed in the district. He congratulated those who had given free labour on the road and those who had given lands to make the road possible. The meeting rose with the singing of the National Anthem.

E. V. METCALFE VAUGHAN,
Honorary Secretary.

ST. ANN: Hiattsfield, Ocho Rios P.O.—Meeting held 8.2.39. Present: The President, J. S. Forrest; B. Moncrieff, 1st Vice-President; the Secretary, W. R. S. Green; the Instructor and a large number of members and visitors. There was a very interesting discussion on the planting of Negro Yams. Mr. T. P. Lecky, Government Stock Inspector, gave a talk on the rearing of animals. He was thanked for his inspiring lecture. Authorized Persons reported. The meeting closed with the singing of the National Anthem.

I. S. BRYAN,
Secretary.

ST. ANDREW: Liguanea.—Meeting held 19th January. Report of the delegate to the Half-Yearly General Meeting was read and adopted. He was thanked for his interesting notes. The topic of the evening was Animal Husbandry, which was dealt with in a most effective manner by Supervisor Hanson. He urged that Agricultural progress cannot be maintained if the farmer does not take his livestock problems more seriously. Stock Manure is essential to successful farming and was one of the strong points stressed by Professor Engledow of the Royal Commission, when he visited certain small holdings in St. Andrew. Mr. Hanson also dwelt on the problems of selection and maintaining good strains of domestic animals. His remarks were supported by Mr. J. B. Sutherland, Supervisor of Plant Disease Inspectors, who surprised the audience by his remarkable statement that a goat is capable of producing $3\frac{1}{2}$ lb. of Manure daily, making at least 1,200 lb. per annum. Mr. Redshaw, foreman of the Hope Stock Farm, gave an interesting talk on Breeding. Many questions were put to the speakers, which elicited much valuable information.

DONALD MACDONALD,
Secretary.

ST. CATHERINE: Bermaddy, Linstead P.O.—Meeting held 19.1.39. Mr. J. Boodoo, 1st Vice-President, presided. The meeting was called a week earlier than it should have been, in order to make arrangements for a proposed banquet, and also to determine how much the Society should contribute towards defraying the expenses of the new bell bought for the district. Mr. George Reid was nominated for the position of an Authorized Person. Land Settlement, Water Supply and the Road question were dealt with, and the meeting terminated with "the King."

D. E. ATKINSON,
Secretary.

Ewarton, Ewarton P.O.—Meeting held 22.2.39. Present: Mr. B. H. Irving, presiding; Mr. C. S. Byles, Instructor; Mr. T. P. Lecky of the Department of Agriculture, and a number of members and visitors. Mr. Lecky lectured on the rearing of livestock, and dealt with Breeding, Selection, Sanitation and Feeding. He spoke in favour of pure-bred animals. He named suitable fodder for cows and gave useful hints on milking and the handling of milk. Questions were asked of the lecturer. The Secretary gave a report of the working of the sire goat owned by the Branch. Members expressed satisfaction. Mr. B. T. Atkinson, who represented the Branch at the last Half-Yearly General Meeting, gave a report which was well received. The meeting closed with the singing of the National Anthem.

W. B. LESLIE,
Secretary.

Princessfield, Bog Walk P.O.—Meeting held 23.1.39. Present: The Chairman, Mr. I. A. Peterson; 1st, 2nd, and 3rd Vice-Presidents; the Secretary, Mr. P. Graham; Mr. Lecky, a visitor; Instructor Byles, Foreman McNichol, and many other members. Mr. Lecky gave an inspiring address on Poultry rearing, farming, land room and improvement of the soil. He pointed out that care should be exercised in selecting feeding for Stock, especially goats. He was thanked for his able deliberation. Instructor Byles gave a very interesting address on selection of seeds for planting. Many visitors became members. The singing of the National Anthem brought the meeting to a close.

P. G. GRAHAM,
Secretary.

Wakefield, Linstead P.O.—Meeting held 10.1.39. Present: Mr. Nathaniel Duffus, President; and 12 other members. There was a discussion re the general condition of the Island, also Land Settlement. It was suggested that the Parochial Board should give more attention to the roads of the district. The meeting was terminated with the singing of the National Anthem.

L. A. FERGUSON,
Secretary.

ST. ELIZABETH: Rose Valley, Balacava P.O.—Meeting held 5.1.39. Present: Messrs. A. B. Huffstead, 1st Vice-President in the chair; E. T. Roomes, 2nd Vice-President; C. Wallace, 3rd Vice-President; F. W. Kelly, Instructor; F. A. Roomes, Secretary; E. Longmore, Asst. Secretary; 24 other members and a few visitors, 7 of whom became members. Correspondence was read, which included letters from the Parent Society re Land Settlement, and from the Superintendent Public Works. It was decided to send a deputation to the Hon. E. V. Allen on the matter of Land Settlement. The Secretary was directed to write to the Manchester Parochial Board on the matter of road extension, and to the General Secretary re a Cassava Demonstration Plot. The necessity for an Assistant to the Instructor was discussed, and the Secretary was directed to communicate with the Parent Society on the matter. The Secretary gave a concise report of the Annual Meeting of the Trelawny Branches Associated. He was accorded a hearty vote of thanks. The Instructor gave an interesting lecture on the Banana Improvement Campaign. 6 Authorized Persons reported. The question of establishing an Agricultural Loan Bank was dealt with and explained by the Instructor. The meeting terminated with "The King."

F. A. ROOMES,
Secretary.

Kilmarnock, Newmarket P.O.—Meeting held 5th January. Mr. R. E. Hart presided. A letter was read from the Nightingale Grove Branch inviting the Branch to a special meeting re the cultivation of vegetables. Members promised to attend. The Secretary was instructed to correspond with the Parochial Board re water supply. Present: 11 members. The meeting terminated.

J. E. MONTEITH,
Secretary.

ST. MARY: Woodside, Pear Tree Grove P.O.—Meeting held 18.1.39. Present: Mr. G. C. Chamberlain, 1st Vice-President; 21 members, 4 visitors and the Secretary. Mr. H. S. Brodber, delegate to the Half-Yearly General Meeting, gave his

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report. Mr. J. A. Grant raised the question of better protection by Government for the Small Stock Industry. In an address, Mr. H. S. Brodber encouraged members to evince greater interest in the meetings. After an agenda had been made for the February meeting and the National Anthem sung, the meeting terminated.

H. S. BRODBER,
Secretary.

Baxter's Mountain, Annotto Bay P.O.—Meeting held 17.1.39. The 3rd Vice-President, Mr. H. Smellie, presided. The Land Settlement Scheme was discussed. Authorized Persons A. Strachan and H. Smellie reported. The control of insect pests was discussed. Information was supplied by the Secretary. Contractors desired to know if they could be informed by the Parent Society how to dispose of their fruits, as the companies had ceased purchasing. It was decided to hold a special meeting to discuss this matter. The Roll was called and the meeting stood adjourned.

R. J. LAWSON RICKETTS,
Secretary.

Flint River, Troja P.O.—Meeting held 12th January. Present: Mr. H. G. Vassal, President; Mr. E. L. Fawcett, Secretary; Miss M. R. Dawkins, Asst. Secretary, and 7 other members. The problems of Land Settlement were discussed. The matter of a pedigreed boar for the Branch was introduced. The Secretary was instructed to send a letter to the Parochial Board re the condition of the No. 40 Road. The delegate to the meeting of the St. Mary Branch's Associated gave his report. He was heartily thanked. The meeting terminated with the singing of the National Anthem.

(Miss) M. R. DAWKINS,
Asst. Secretary.

Highgate, Highgate P.O.—Meeting held 8.2.39. Mr. C. L. Belnavis, 1st Vice-President, presided. There was an attendance of 56 members. The Secretary was instructed to write to the Parent Body requesting particulars re the Land Settlement Scheme. Mr. J. M. Coko of Carron Hall gave a very helpful address on the value of the Agricultural Society. Mrs. M. Hitchens, President of the Highgate Branch of the Women's League, was given a hearty welcome to the meeting. She spoke about the canteen in connection with the Highgate School. A report of the Half-Yearly General Meeting was given by Mr. C. L. Williams. Instructor Jones gave a short address including two important announcements regarding the Government Marketing Board and the visit of Mr. T. P. Lecky, Government Stock Inspector, to the district. Mr. W. Page, Authorized Person, reported "all correct." The meeting was brought to a close with the singing of the National Anthem.

C. L. WILLIAMS,
Hon. Secretary.

Jackson, Bonny Gate P.O.—Meeting held 26th January. Present: Messrs. C. Day, President; H. G. Young, Secretary; Miss F. M. Marston, Assistant Secretary, and a good turn-out of members. The Secretary read a letter from the Treasurer, Miss A. L. Evans, tendering her resignation. This was accepted. One Authorized Person gave in a report. Delegates who attended the annual meeting of the St. Mary Branches Associated gave concise accounts of the proceedings. It was decided to ask the Parochial Board to give better attention to roads in the area. After a short talk by the President, the meeting terminated with the singing of "The King."

(Miss) F. M. MARSTON,
Asst. Secretary.

Long Road, Long Road P.O.—Meeting held 16.1.39. The 1st Vice-President occupied the chair. He urged increased membership for 1939. Mr. Webber, Teacher for the district, gave an interesting lecture on Agriculture, Industries, Diseases and Soil. He was thanked. Authorized Person A. B. Davis reported one arrest and conviction. It was decided to form a Juvenile Branch. A vegetable growing competition was to be arranged. 28 members and 36 visitors were present. After minor matters had been discussed, the meeting ended with the singing of "The King."

R. M. HIRD,
Secretary.

Mt. Regale, Mt. Regale P.O.—Meeting held 8.2.39. Present: Mr. P. G. Edwards, 1st Vice-President, who presided; Mr. D. A. Jones, Instructor; 15 members, 4 visitors and the Secretary. The Secretary reported on the expenditure of five shillings of the Branch's funds. It was suggested that the next meeting be held at Mr. T. W. Mattock's residence, when a Souvenir would be given to him in appreciation of his long service as a Treasurer of the Branch. Authorized Persons

reported. The Secretary was advised to write to the members of the Parochial Board reminding them of the unsatisfactory condition of the water supply of the district. The Instructor in his address encouraged cattle rearing on a larger scale in view of the erection of a Condensary. The meeting was terminated by the singing of "The King."

T. H. HANNAN,
Secretary.

ST. THOMAS: Golden Grove, Golden Grove P.O.—Meeting held 26.1.39. 9 members were present. The President opened the meeting with prayer. The following matters were discussed: (i) Gordon Range to be acquired for purposes of Land Settlement and Demonstration Plot; (ii) Golden Grove Market Shed; (iii) Hampton Court Water Supply.

DORRELL REID,
Secretary.

Thornton, Sunning Hill P.O.—Meeting held 10.1.39. Present: Mr. Alfred A. Williams, President; 12 members, and the Secretary. The Secretary read correspondence from the Parent Society and the Instructor. The need for Authorized Persons was pointed out. Land Settlement was discussed. The meeting closed with the singing of the National Anthem.

N. A. PATTERSON,
Secretary.

John's Town, Morant Bay P.O.—Meeting held 17.1.39. Mr. H. I. Wyatt presided. Present: 21 members and a few visitors. The members decided to purchase a buck. Reference was made to resolutions sent to the Half-Yearly General Meeting. The Secretary introduced the question of increase of membership, and asked members to co-operate with him in increasing the numbers. After the singing of the National Anthem, the meeting adjourned.

J. H. E. MACBETH,
Secretary.

TRELAWNY: Waldensia, Sherwood Content P.O.—Meeting held 2.1.39. Present: Mr. D. A. Beckford, President; 22 other members and visitors. The chief discussions were: (i) Method for the planting of Irish potatoes; (ii) the need for road improvement; and (iii) increased membership. Letters from the Parent Body were read. The meeting adjourned with the singing of the National Anthem.

C. A. COTTELL,
Reporting Secretary.

WESTMORELAND: Porter's Mountain, Mount Peto P.O.—Meeting held 23.1.39. Present: Mr. L. M. Watson, 3rd Vice-President, who presided; 15 members and some visitors, including members from the Juvenile Society. Mr. L. D. Barracks, Delegate to the Half-Yearly General Meeting, expressed regret at his inability to attend this meeting. Mr. L. M. Watson and Mrs. R. McKenzie who had been appointed to collect funds for obtaining a bell for the district gave a report. Correspondence was dealt with. Members were informed that letters re Dental Clinic for Westmoreland and a Ticket Distributor for Porter's Mountain were under consideration by the Parochial Board. It was decided that the Society should hold a "Pleasant Evening." Members were asked to contribute to the programme. Arrangements were made for the following meeting. The National Anthem was sung.

D. F. BOWEN,
Secretary.

JUVENILE BRANCHES.

CLARENDON: Ritchies.—Meeting held 2.2.39. Present: Miss Imogene Davy, President; the Secretary, Miss Tomlin, a large number of children, the Head Teacher and staff. A report of the distribution of seedlings to the children was given. They were reminded of the Poultry Project. The Secretary read interesting accounts from the Journal about Juvenile Branch meetings and a Juvenile Show. The meeting terminated.

W. E. MORRIS,
Head Teacher.

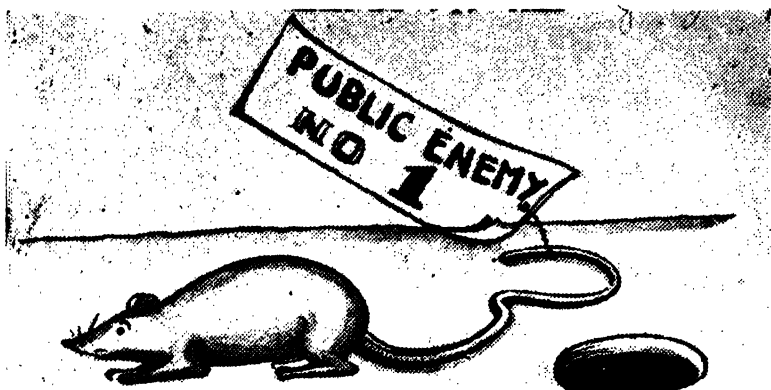
ST. MARY: Flint River.—Meeting held 12.1.39. Present: Master Edwin Barber, President; Master Hubert Buchanan, Secretary; and over 60 members. The President welcomed the members. It was reported that the cabbage suckers

for the competition are growing well. Members are desirous of obtaining a ram of good strain. There were songs by Everal Shaw, Daisy Johnson, Alice Hart, Ceres Stewart, and recitations from Millicent Woung and Nora Barber. After a very enjoyable meeting, the roll call was taken. The meeting terminated with the singing of the National Anthem.

(Miss) M. R. DAWKINS,
Reporting Secretary.

OTHER REPORTS RECEIVED.

Branch and Secretary.	Date of Meeting.	Attendance.	Business.
<i>Clarendon—</i> Beckford Kraal (J. A. Sweeney)	9.1.39	13	Reports of Authorized Persons. Routine matters.
<i>Portland—</i> Balcarres (D. E. Nesbitt)	25.1.39	Over 10	Correspondence. Reports of Authorized Persons. Address by Instructor Wilmot.
Bangor Ridge (George A. Barnes)	5.1.39	13	Reports of delegate to meeting of the Portland Branches Assoc. Demonstration Plot. Rearing of goats. Address by Instructor Wilmot.
Craigmill (Rev. T. Lawrence)	7.2.39	Over 13	Reports of delegates to meeting of the Portland Branches Assoc. and Half-yearly General Meeting. Reports of Authorized Persons. Address by the President.
<i>St. Catherine—</i> Bellas Gate (Miss G. Fletcher)	9.1.39	..	Land Settlement. Saanen Goat. Leaf Spot.
Morris Hall (T. E. Lawrence)	6.1.39	Over 40	Report of Working Committee. Enrolment of new members. Land Settlement. Address by Rev. J. J. Hay.
<i>St. Elisabeth—</i> Malvern (Miss M. L. Benjamin)	27.1.39	14	White Yam Competition. Address by Mr. A. R. Knight. Minor matters.
<i>St. James—</i> Cambridge (J. Gordon Excell)	14.1.39	14	Leaf Spot Disease. Enrolment of new members.
<i>St. Thomas—</i> Hagley Gap (Miss B. E. Singleton)	27.1.39	11	Correspondence. Report of delegate to the Half-yearly General Meeting. Reports of Authorized Persons.
Woburn Lawn (Mrs. A. L. Morgan)	13.1.39	..	Poultry rearing. Minor matters.
White Horses (A. V. Hague)	30.12.38	..	Leaf Spot Disease. Report of delegate to the meeting of the St. Thomas Branches Assoc. Land Settlement. Finances.



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COST OF BOXES.—The costs of boxes used in packing plants will be added to each account at the rate of 6d. for every 10 plants or portion of 10 plants.

N.B.—BOXES ARE NO LONGER RETURNABLE.

FRUIT TREES AND PLANTS.—Price 1d. each, except where otherwise stated, delivered free at any railway station.

Star Apple, Otaheite Apple, Jack Fruit, Nilgiri Hills Blackberry plants from beds; Coco Plum, Naseberry, Granadilla, Guava, Cherimoya, Mangosteen, 6d.; Grape, 3d.

ECONOMIC PLANTS.—Price 1d. each, except where otherwise stated, delivered free at any railway station.

Ylang-ylang (*Cananga odorata*), Cinnamon, Annatto, Breadfruit, 9d.; Sarsaparilla, Avocado Pear.

ORNAMENTAL SHADE TREES AND SHRUBS.—Price 1d. each, except where otherwise stated, delivered free at any railway station.

Bauhinia Galpini; Brownea coccinea, Couroupita guianensis (Cannon Ball Tree), 3d. Dillenia indica, 3d. Michelia Champaca (Champac Tree) 3d. Palms, several species; Poinciana regia (Flamboyant), Posoqueria longiflora, Saraca indica (Asoka Tree), 3d. Tecoma spectabilis (Poui), 3d. Jacaranda mimosaefolia, 3d. Spatho-lea campanulata, 3d. Cassia nodosa, 3d. Triplaris surinamensis, Ficus lucida 1/- Cassia grandis; Thuja 6d. each. Ficus elastica, 1/- each. Murraya exotica, Cordia sebestena, Diospyros discolor (Ebony), 3d. Lignum vitae.

FREE ECONOMIC PLANTS.—Pithecolobium arboreum (Wild Tamarind), from beds; W. I. Cedar, Mahogany, Bastard Cabbage, Bitter Damsel.

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THE JOURNAL

OF THE

Jamaica Agricultural Society.

The more people do the more they can do; he who does nothing renders himself incapable of doing anything; while we are executing one work we are preparing ourselves for undertaking another.

Vol. XLIII.

APRIL & MAY, 1939.

Nos. 4 & 5.

BOARD OF MANAGEMENT.

THE regular monthly meeting of the Board of Management of the Jamaica Agricultural Society was held at the Offices of the Society 10-12 North Parade, Kingston, on Wednesday, the 1st of March, 1939, at 11.30 a.m. There were present: Hon. George Seymour Seymour, O.B.E., 1st Vice-President, presiding, Rev. W. J. Thompson and Mr. U. Theo McKay, Second and Third Vice-Presidents, respectively; Hon. G. A. Jones, C.M.G., Director of Agriculture (*ex-officio*), Messrs. R. A. Burke, T. J. Cawley, C. O. Cover, H. G. Dunkley; Hons. A. B. Lowe, and Rev. W. J. Maxwell, Messrs. T. P. V. McDaniel, C. L. A. Stuart, and W. Harper Watson; Mr. P. St. L. Bacquie, Supervisor of Instructors and the Secretary, Arthur Thelwell.

Shortly after the meeting began the Hon. C. A. Reid attended.

Apologies for Absence.

Apologies for absence were submitted on behalf of the Hons. M. H. Segrè and C. A. Little and Mr. D. D. Phillips.

Confirmation of Minutes.

The Minutes of the previous meeting having been circulated, they were taken as read, and on the motion of Mr. McKay, seconded by Mr. McDaniel, they were confirmed.

Death of Mr. C. D. V. Henderson (Instructor).

Memo from Secretary.

In this Memorandum the Secretary reported the sudden death of Instructor Henderson who passed away on the morning of the 9th February.

Resolution of Condolence. The Chairman spoke on this subject and moved the following Resolution:

"Resolved that the Board of Management place on record regret at the death of the late Chas. D. V. Henderson, Instructor for St. Andrew, and desire to convey to his widow their sincere sympathy in her sad bereavement.

Due acknowledgment is made of the high regard in which Mr. Henderson was held and appreciation is recorded of the excellent work which he performed for the Society."

This was seconded by the Rev. W. J. Thompson, and unanimously carried, members standing in silence.

Grant to Mrs. Henderson (widow of the late Instructor). The Chairman said the following recommendation from the Instructors Committee was submitted for the approval of the Board:

"That the balance of the late Mr. Henderson's salary for the month of February be paid to his widow as a gratuity."

The recommendation that the sum of money should be paid was, on the motion of Mr. Thompson, seconded by Mr. Burke, adopted by the Board, but considerable discussion as to the source of the amount took place.

Some members were of the opinion that in view of the fact that the Board of Management had continually complained of shortage of funds for agricultural services a donation from the Grant would be a contradiction of this contention. There was conflicting opinion regarding the desirability or otherwise of obtaining the approval of Government for the payment of this amount from the Society's Official funds.

During the discussion, suggestions of sums equivalent to two months salary of the late Instructor and £25 were suggested by Messrs. Burke and Stuart respectively.

Mr. Cover pointed out that the Board had no document from Mrs. Henderson asking for assistance and in his opinion the position did not arise.

Mr. Dunkley and other members supported this view.

On the motion of the Chairman, seconded by Mr. Cover it was finally decided that an amount equivalent to the value of the balance of the Instructor's salary for the month of February, should be paid to Mrs. Henderson from the Society's Seed Department funds.

Marketing.

The Chairman at the request of the Director of Agriculture obtained the permission of the Board to allow the Marketing Officer, Mr. F. E. V. Smith to confer with them on an item listed on the Agenda under "Other Business", i.e.:—

Corn Industry.

A Memorandum from the Director of Agriculture on this subject was submitted.

The question of the marketing of local products was discussed especially from the angle of co-operative operations between the Society and the Marketing Division.

A Committee consisting of the three Vice-Presidents, Messrs. Burke, Cawley, Dunkley, and McDaniel was appointed to act along with the Director of Agriculture and the Marketing Officer to decide on a policy of mutual development and contact between the Society and the Marketing Division in matters concerning the marketing of products, and to report to the Board of Management.

Mr. Burke's suggestion that the Department of Agriculture should be congratulated on their attitude in this matter was agreed to.

Assistant Secretary: Expiration of Probationary Period.

The Secretary notified the Board of the expiration of the probationary period of the Assistant Secretary and presented a report on his work.

After discussion Mr. Maxwell moved that Mr. C. L. Stuart be confirmed in his appointment as Assistant Secretary of the Jamaica Agricultural Society.

This was seconded by Mr. McKay.

The motion was carried with the following seven members, Messrs. McKay, Cawley, Maxwell, Thompson, Lowe, Stuart and Burke, voting

for, and the following five members, Messrs. Reid, Cover, McDaniel, Watson and the Chairman voting against it. The Director of Agriculture and Mr. Dunkley did not vote.

The meeting then adjourned for luncheon.

Resumption.

On the resumption there were present: Hons. C. A. Reid, and Rev. J. W. Maxwell; Messrs. McDaniel, Stuart, Watson and Cover; Mr. Bacquie, Supervisor of Instructors and the Secretary.

On the motion of Mr. McDaniel seconded by Mr. Watson, Mr. Cover was voted to the Chair.

Matters arising out of the Previous Minutes.

(a) *Reduction of price of Sugar for Preserves*—*Letter from Sugar Manufacturers Association (of Jamaica), Ltd.* The Secretary explained that the Half-Yearly Meeting had passed a resolution asking for a reduction of the price of sugar for preserves. This resolution had been referred to the Board of Management and at their direction the matter was taken up with the Sugar Manufacturers Association (of Jamaica), Ltd., who had replied that the price would be reduced to £19 per ton. The Board, however, was of opinion that this sum could be further reduced and directed that further representations should be made. A further communication was sent to the Association and the following reply setting the price at that date as £15 per ton. was received:

17th February, 1939.

"We are in receipt of your favour No. 5353 of the 6th inst. which was put before our Directors at their Meeting of the 15th, together with previous correspondence on the subject.

Your Board is mistaken if it thinks that duty has been included in the calculation of the price of Refined Sugar. In ours of the 23rd ult. we mentioned duty as part of the landed cost of Canadian Refined Sugar if such were permitted to be imported.

The special price of £22 10s. 0d. to manufacturers of preserves, confectionery, etc., applies to any quantity down to 1 bag of 112 lbs., and to all manufacturers alike.

Our Directors decided to go as far as they possibly can to assist in the development of an Export trade in preserves and confectionery and instructed us to issue a Circular, copy of which we enclose.

You will note that there is nothing in it for the Association except the hope that exports of preserves and confectionery will increase and thus assist the Island generally by making it possible to produce more Sugar.

The three component parts of the finally reduced price, after the new rebate has been applied, are (1) the bare export value of Raw Sugar, (2) the actual out-of-pocket cost to the Association of refining the Raw Sugar, and (3) expenses actually incurred on the Sugar before delivery to the user—(in fact, slightly under the full cost at present).

The Directors hope their action will result in encouraging exports of preserves and confectionery, and that the extent of the concession made will be realized."

(Sgd.) D. J. VERITY.

Manager.

The Sugar Manufacturers' Association
(of Jamaica) Ltd.

The Secretary stated that he had received in addition a circular letter on the subject. Copies of this had been issued to the makers of preserves and a copy would appear in the next issue of the Journal.

Mr. McDaniel said it was gratifying that a satisfactory solution had been arrived at in this matter and the Secretary was directed to write a letter of appreciation to the Sugar Manufacturers Association.

(b) *Misph Agricultural Exhibition*—*Application for grant.* The Secretary stated that this matter had been deferred from the last meeting for further information. He further said that funds were available from which a small grant could be made for this local effort.

On the motion of Mr. Stuart seconded by Mr. Maxwell the sum of one guinea was authorised to be paid.

Statement of Accounts.

Statement of Accounts for the month of January, was submitted and the Secretary was directed to issue copies to members.

Questions.

(a) Mr. Watson asked if machinery for grinding materials for feeding stock was imported into the Island free of duty.

The Secretary stated that there was a 33 $\frac{1}{3}$ % preference tariff on such articles, but in many instances on application to the Collector General and on proving to him that the machinery was imported for agricultural service he had waived the duty.

Mr. Watson said that a machine for the grinding of Cassava for feeding pigs had been imported into the Island at a cost of \$18 which covered the first cost and the freight charges. A broker charged £2 8/- for fees and duty.

The Secretary was directed to take up this matter with the Collector General with a view to having the amount paid for duty refunded.

(b) Mr. Watson asked what progress had been made in the Rat Extermination Campaign.

The Secretary stated that the question as to what form the campaign should take had been discussed and the Committee recommended a Tails Competition. The Department of Agriculture, however, was in favour of a Poison Campaign and the Deputy Island Chemist agreed to compound a suitable poison put up in bamboo joints ready for distribution. Mr. Barnett however had to act in the interim between Mr. Barnes' resignation as Director of Agriculture and the taking up of the position by Mr. Jones. Mr. Barnett had since returned to his substantive duties and as soon as he (the Secretary) was assured that the ingredients were ready for making the poison he would proceed with the Campaign.

Notice of Motions.

On behalf of the First Vice-President the following notice of motion was given:

"I beg to give notice that at the next meeting of the Board of Management I will move that Bye-Law No. 15 of the Board of Management of the Jamaica Agricultural Society shall be amended to read as follows:—

"There shall be an Instructors Committee consisting of seven members of the Board of Management, (that is, six members elected by the Board and the Director of Agriculture added as Chairman) three to form a quorum to have executive authority over the Instructors with regard to field work and to report to the Board of Management for information.

The Committee shall meet at 10.00 a.m. on the first Wednesday of each month unless the Committee by resolution fixes otherwise".

(Sgd.) G. SEYMOUR SEYMOUR.

Resolutions.

The Secretary stated that the following resolutions were on the Agenda in the name of the Hon. G. Seymour Seymour:

(i) "Be it resolved that the resolution moved by Mr. D. D. Phillips and seconded by Mr. Burke and passed by the Board of Management—

"That Rule 15 be suspended for a further period of twelve months, with the proviso that the whole Board of Management be the personnel of the Instructors Committee, three to form a quorum; that the Director of Agriculture be the Chairman and that the Instructors Committee have full executive power to deal with the work of the Field Staff, but all financial matters must be referred to the Board of Management for their consideration and sanction,"

on the 6th July, 1938, be rescinded and the following substituted therefor:

"That Rule 15 be suspended for such period as will enable this Board to amend the Rule and that the Planning Committee be abolished and replaced by an Instructors

Committee with the Director of Agriculture as Chairman, to have executive authority over the Instructors in regard to field work, and to send in reports to the Board of Management for information. The number of the Committee shall be seven and the quorum three."

(ii) "Be it resolved that the Board confirm all actions of the Instructors Committee for the period 6th July, 1938, to date.

These matters were deferred.

Communications.

(a) *Letter from C.S.O. re Trade Licence.* The following letter was submitted:

11th February, 1939.

No. 4918/38.

"I have the honour to inform you that the Government is advised that the Jamaica Agricultural Society is liable under Law 7 of 1908 to take out a Trade Licence, and that if the Society fails to do so, it is liable to prosecution under the provisions of Section 23 of that Law.

The Government will be glad, therefore, if your Society will take out a Trade Licence in respect of the trading activities in which it is engaged."

(Sgd.) J. D. LUCIE-SMITH,
for Colonial Secretary.

It was moved by Mr. Watson and seconded by Mr. McDaniel that the necessary Trade Licence be obtained.

Mr. Cover suggested that an appeal be made to Government that the Law be amended to allow the Society to operate without such a Licence. It should be pointed out that the Society did not elect to trade for profit, but they had found it necessary to undertake the importation and distribution of certain seeds, plants and feeds, etc., for the special advantage of farmers. They had been able to procure certified seeds for planting and had put on the market certain desirable feeds and other material for the use of farmers at very much more economical cost than had obtained before the Society made efforts in that direction.

Mr. Watson with the consent of his seconder withdrew his motion in favour of this suggestion which was unanimously agreed to.

(b) *Memo from Director of Agriculture re Preservation of Trees.* The following was submitted:

14th February, 1939.

No. 13231/38.

"I am instructed by the Director of Agriculture to forward herewith an extract from a memorandum prepared by the Forest Officer on the subject of the "Preservation of Trees in Jamaica", and to request that the views of the Jamaica Agricultural Society might be given on this matter, especially in regard to the legislation proposed.

(Sgd.) GEORGE GOODE,
Chief Clerk.

The Secretary stated that copies of the Memorandum had been issued to individual members of the Board with a request for their views on the matter. He had advised the Director of Agriculture that this matter was discussed at the Half-Yearly Meeting held on the 13th January, 1938, when a resolution was moved on behalf of Mr. Sangster by Mr. Cawley, "that the Government be requested to prohibit by legislation the sale of the bark of all hardwood and economical trees."

After discussion it was agreed that no legislation was necessary as there was a Law which provided for the protection of the trees and it was competent for other trees to be added to the schedule. It was also pointed out that an embargo on the sale of bark would work hardship on persons who felled mature trees on their own properties and desired to sell the bark.

The Secretary also stated that the Society had submitted photographs of specimens of trees to the Empire Marketing Board which had

promised to make coloured pictures of these, on receipt of which pictures, propaganda for the preservation of trees would be undertaken.

The Secretary was directed to discuss the matter further with the Director of Agriculture and report to the Board.

(c) *Letter from C.S.O. re Tenders for Foodstuffs.* The following was presented:

No. 7431/34.

"With reference to the interview which a deputation from your Society had at this Office on the 25th January, 1939, in regard to the supply of ground provisions and fruit to Government Institutions, I have the honour to inform you that Government has approved of an arrangement being entered into between your Society and the Development and Marketing Officer for the supply to Government at a price that is considered fair to the cultivator and reasonable to Government of ground provisions and fruit listed under Head VII, of the Notice dated the 12th January, 1939, and published in the Daily Gleaner of the 21st January, 1939, and by the Secretary of the Tenders Board, calling for tenders for supplies for the Public Service of the Colony for the period 1st April, 1939 to 31st March, 1940.

The Tenders Board has been requested to refrain from accepting any tenders in respect of ground provisions and fruit which may be submitted to them for the period 1st April, 1939 to 31st April, 1940."

(Sgd.) J. D. LUCIE-SMITH,
for Colonial Secretary.

The Board agreed that this matter should be dealt with by the Committee appointed to co-operate with the Director of Agriculture and the Marketing Division re marketing of local commodities, and report further to the Board.

It was brought to the attention of the Board that competitions in the White Yam Competition had produced a considerable amount of high quality white yams and the Secretary was asked to make arrangements with the Instructors to purchase these yams for sale through the Society.

It was also thought desirable that in arranging for the marketing of products members of the Jamaica Agricultural Society should receive first consideration.

(d) *Letter from C.S.O. re Appointment of Mr. Shirley (Instructor) to Lands Department.* The Secretary stated that this matter had been considered by the Instructors Committee and their recommendations would be submitted in the report.

(e) *Letter from West India Committee acknowledging contribution to the Sir Algernon Aspinall Testimonial Fund,* was submitted and noted.

(f) *Letter from Sir Algernon Aspinall acknowledging resolution of appreciation.* The following was submitted and noted:

20th January, 1939.

"The Secretary of the West India Committee has sent me a copy of the Resolution passed by your Association expressing appreciation of any services which I may have been able to render to Jamaica whilst I occupied that position.

The sentiments expressed in the resolution are very gratifying but I wish I could feel that I deserved them more. I should add that it gave me very great pleasure as Secretary of the West India Committee to co-operate with the Jamaica Agricultural Society, which has rendered such signal service to agriculturists in the West Indies, and that I feel confident that you may rely on the co-operation of my successor, Mr. Edward King.

Thanking your Board for their message."

(Sgd.) ALGERNON ASPINALL.

Reports from Committees.

(a) *Instructors.* The following report was presented:

1st March, 1939.

To the Board of Management—

The Instructors' Committee met this morning and report as follows:—

- i. The committee recommends that the balance of the late Mr. Henderson's salary for the month of February be paid as a gratuity to his widow.
- ii. The foreman in charge of the Charlton Demonstration Plot has been dismissed and arrangements have been made for the carrying on of his work.
- iii. A complete survey of the Demonstration Plots will be made and a decision arrived at with regard to the future of these plots.
- iv. A resume of the work of the Agricultural Foremen will be circulated to the Committee.
- v. Resolutions from the Instructors Conference was discussed and deferred for further consideration.
- vi. It was decided to appoint two Assistant Instructors so as to bring the Staff up to strength.
- vii. Draft Agreement with owners of land for Demonstration Plots drawn up by the Crown Solicitor was accepted.
- viii. Banana Improvement Campaign. The work of the Instructors in this connection has been discontinued.
- ix. Instructor Shirley has resigned to take up a position with the Lands Department and the Committee has approved of his taking up this position immediately.
- x. A report on the tomato project at Cross Keys was presented and accepted.
- xi. The Committee beg to recommend that a sum of £20 be approved for a nursery at Toll Gate in Clarendon.

(Sgd.) G. A. JONES, Chairman.

ARTHUR THELWELL, Secretary.

On the motion of Mr. Stuart seconded by Mr. Dunkley the recommendation that a sum of £20 be allocated for nurseries in Clarendon, was adopted.

Mr. Dunkley suggested that in notifying the Colonial Secretary of the Board's approval of Mr. Shirley being relieved so that he could take up the new appointment, mention should be made of the Board's appreciation of Mr. Shirley's efficient and loyal service.

This was agreed to.

(b) *On Resolutions.* A Report setting out in detail how the resolutions submitted by Branches had been dealt with by the New Committee on Resolutions was submitted and approved.

Secretary's Report on Travelling, for the month of February, was submitted and noted.

New Members.

On the motion of Mr. Dunkley seconded by Mr. Stuart the following were elected to the Membership of the Society:

Cecil E. Burton, 47 Old Hope Road, Cross Roads.

A. J. Sampson, c/o Messrs. Hardware & Lumber, Ltd., Kingston.

Major P. R. Henri, D.S.O., M.C., Halberstadt, Kalorama.

Rev. V. C. Mornan, Highgate.

Agnes Verona Belt, Christiana.

C. G. Scudamore, Manchester Pastures, Williamsfield.

Other Business.

(c) *Application from Ashton Branch for Subsidy—Half-cost of buck*

On the motion of the Chairman, seconded by Mr. McDaniel it was agreed that the sum of £1 11s. 6d., being half-cost of the buck which the Branch desired to purchase, be paid under the existing regulations governing Small Stock Subsidies.

(d) *Application from Miss M. Roberston for one month's leave from 11.4.39,* was, on the recommendation of the Secretary, granted.

(e) *Telegram from Sheffield Branch expressing appreciation of the efforts of the Board re Telephone Office at Sheffield,* was read and noted.

(f) *Agricultural Credit*. The following was submitted:

Extract from the minutes of the Agricultural Credit Committee meeting held on Saturday, February, 25th 1939.

Resolution.

The following resolution was moved by Mr. A. F. Thelwell:—

"Resolved that this Committee take the necessary steps to ask Government to procure the services of an Economic Expert to go fully into the question of Agricultural Credit and make recommendations."

Mr. Thelwell said that getting correct data was too intricate a work for a Committee, and in order to ensure any reasonable success for their scheme when submitted to Government, it was necessary for that scheme to be based on the findings of such an expert as he advocated.

Mr. Cawley seconded the resolution and suggested that it be placed before the Board of Management at its meeting on March, 1st.

This was agreed to, and the resolution was carried.

Travelling Expenses.

Mr. E. C. Grant said that members of the Committee should receive travelling expenses from the Society.

After some discussion, the Secretary was instructed to have the matter referred to the Board of Management at their meeting on March, 1st.

The communication was received and tabled.

(g) *Citrus*. Specimens of citrus fruit produced by Mr. D. D. Phillips were submitted and the following memorandum from Mr. Phillips was presented:

"Buds of this, I will be able to supply the Department from Ten to Twenty Thousands in lots of 5,000 at intervals, and also about 4,000 budded suckers for planting in the Fall of this year, provided prices are encouraging. Buds cannot be supplied at less than 10/- per 100, as this means retarding my trees greatly.

From information, I understand that similar fruit to the "pretty" have been fetching 20/- to 25/- per box in the English market under the registered name of "Ortannique".

The fruits were very favourably regarded by the members of the Board who pronounced them the best of their kind; and were apparently what the Society had been in search of, "The perfect Jamaica orange".

The Secretary was directed to submit this matter to the Committee appointed to deal with the Citrus Competition.

The meeting then adjourned to Wednesday, the 5th day of April, 1939, at 11.30 a.m.

BOARD OF MANAGEMENT.

The regular monthly meeting of the Board of Management of the Jamaica Agricultural Society was held at the Offices of the Society 10—12 North Parade, Kingston, on Wednesday, the 5th day of April, 1939, at 11.30 a.m. There were present: Hon. George Seymour Seymour, O.B.E., 1st Vice-President, presiding; Rev. W. J. Thompson and Mr. U. Theo. McKay, Second and Third Vice-Presidents, respectively; Hon. G. A. Jones, C.M.G., Director of Agriculture (*ex-officio*) Hons. C. A. Little and Rev. J. W. Maxwell; Messrs. R. A. Burke, T. J. Cawley, H. G. Dunkley, T. P. V. McDaniel, D. D. Phillips, C. L. A. Stuart and W. Harper Watson; Mr. P. St. L. Bacquie, Supervisor of Instructors and the Secretary, Arthur Thelwell.

Apologies for Absence.

Apologies for absence were submitted on behalf of the Hon. C. A. Reid and Mr. C. O. Cover.

Confirmation of Minutes.

The Minutes of the previous meeting having been circulated, they were taken as read and on the motion of Mr. Stuart, seconded by Hon. and Rev. J. W. Maxwell were confirmed.

Matters arising out of the Previous Minutes.

(a) *Letter from Mrs. Henderson acknowledging condolences, etc.,*

The following was submitted and noted:

51 Shortwood Road, Constant Spring,
March 12, 1939.

"Your kind letter of March 6th has been received, expressing the condolence of the Board of Management, your Staff, the Instructors and the Branches.

I also note that the Board has passed a sum of money to be paid to me as gratuity, and that the Instructors had also donated a sum of money for me.

It is with a sense of deep gratitude to the Board, the Staff, the Instructors and all others who have remembered me, that I beg you to express my sincerest thanks to everyone."

(Sgd.) ETHEL HENDERSON.

(b) *Preservation of Trees: Comments on circulated Memo. returned.*

The Chairman said that this matter had been in circulation and comments of members were before the meeting.

Mr. Cawley said that denudation of hillside lands was becoming very serious and steps should be taken to check this evil; particularly on the Bog Walk road was this noticeable. In that area the trees were being cut down for firewood and charcoal; the matter should be forcibly brought to the notice of Government.

The Chairman said he was in agreement with this suggestion for there were signs of slipping in certain places in the Bog Walk hills and if such denudation were to continue Government would soon be put to the expense of repairing the roads or having to make a new road. He also thought that the matter should be brought to Government's attention so as to preserve the vegetation on these hills.

Mr. McKay pointed out that in addition to these adverse effects there was the question of conservation of the watershed for protection of the river.

Mr. Little said it would mean establishing a forest reserve in this section and this would entail taking over of the lands for the purpose.

The Chairman stated that the Secretary had advised him that Mr. Byles, the Instructor for that section was preparing a report on the subject, and the matter was already under discussion with the Forest Department.

It was decided that the matter should be deferred till the next meeting when the report referred to would be available, but in the meantime the remarks of members on the circulated memorandum should be forwarded to the Director of Agriculture.

(c) *Citrus: Letter from Mr. Chas. Jackson re fruit exhibited by Mr. Phillips.* The Secretary presented the following memorandum:

3rd April, 1939.

At the meeting of the Board in March, Mr. D. D. Phillips submitted specimens of an orange which he is propagating and which he informed us was called the "Pritti."

2. The orange was favourably received by the Board and referred to the Citrus Committee appointed to find the perfect Jamaica orange.

3. A newspaper report of the meeting contained an article captioned "Pritti" is a new type of orange following "Ugli."

4. Consequent on the publication of this article a letter (dated 2nd March, 1939) was received from Mr. Chas. P. Jackson of Mandeville and the attached correspondence has since taken place."

(Sgd.) ARTHUR THELWELL,
Secretary.

The Secretary then read the correspondence.

The Chairman suggested that the matter be referred to the Citrus Committee which the Secretary said was scheduled to meet on the 14th of April.

Mr. Phillips said he would like to know whether Mr. Jackson was objecting to the name or the propagation of the fruit.

Mr. McKay expressed the opinion that Mr. Jackson's first letter was out of place, as it was a dictatorial demand for certain facts. He, however, congratulated the Secretary on the way in which he had corresponded with Mr. Jackson. If the Agricultural Society desired to make public that through one of its members it had discovered a type of orange, the propagation of which was eminently desirable for the export trade, he did not think it was in the interests of the Island for any individual to endeavour to place obstacles in the way. If Mr. Jackson's views were upheld by the Board it would deter other members from placing before the Society the results of their experiments which might prove very useful to the Colony.

Mr. Cawley said that cognizance of the correspondence should not have been taken at all. The duty of the Committee was to find the ideal fruit and not to establish would-be ownership.

Mr. Little supported the views of the former speakers and said that Mr. Jackson had not complained of the violation of any trademark or any legal rights therefore he did not see the object of Mr. Jackson attending the meeting of the Citrus Committee.

The Chairman said that there was no harm in Mr. Jackson attending the meeting and submitting specimens of the fruit grown by him.

The Secretary stated that the Committee would first deal with the arrangements for the competition. When the time for the actual judging arrived, Mr. Jackson would have his opportunity of submitting his oranges for competition.

Statement of Accounts.

(a) *Statement for March.* The Secretary said that as the financial year had closed only five days since, the Financial Statement was not yet ready, but a summary of the cash situation at the end of the financial year was available.

This was presented.

(b) *Comments on Statement for November, 1938, by Mr. McKay.* Mr. McKay said that he did not think the comments were germane at the moment and the comments were therefore tabled.

Resolutions.

(a) *Hon. Geo. Seymour Seymour re (i) Bye-Law No. 15 and (ii) Instructors Committee.* At the request of Mr. Little the second section of resolution (ii) was taken as follows:

"Be it resolved that the Board confirm all actions of the Instructors Committee for the period 6th July, 1938, to date."

The Chairman said that as the result of a report submitted to the Half-Yearly meeting with regard to the working of the Instructors' Committee for a period of one year, July 1937-38, the Half-Yearly meeting having been satisfied with the report, decided that the Instructors Committee should continue as it was then constituted. This was done immediately after the Board had passed a resolution which was moved by Mr. Phillips that the personnel of the Instructors Committee should be all the members of the Board of Management.

The Instructors Committee as approved by the Half-Yearly meeting had been operating since July, 1938. According to Bye-Law No. 19 of the Board of Management, the Half-Yearly meeting had no power to alter or amend the Bye-Laws of the Board of Management and the resolution above referred to still held.

The Resolution was seconded by Mr. Little and unanimously carried.

(i) Mr. Seymour then moved the following resolution :

"Be it resolved that Bye-Law No. 15 of the Board of Management of the Jamaica Agricultural Society shall be amended to read as follows :

There shall be an Instructors Committee consisting of seven members of the Board of Management, (that is six members elected by the Board and the Director of Agriculture added as Chairman) three to form a quorum, to have executive authority over the Instructors with regard to field work and to report to the Board of Management for information.

The Committee shall meet at 10.00 a.m. on the first Wednesday of each month unless the Committee by resolution fixes otherwise."

Mr. Seymour gave a resumé of the causes that led up to the change of personnel in the Instructors Committee from the whole Board of Management to a limited committee of seven, which disclosed that it was chiefly on the suggestion of Government that the Board had effected this change. Government on that understanding had voted a sum of money to be placed partly under the control of the Society for the operation of Demonstration Plots. At the end of the trial period of one year the Board at its meeting in July, 1938, passed a resolution reverting to the original personnel of the Instructors Committee with the Director of Agriculture as Chairman. A report of the working of the small Committee was submitted to the Half-Yearly meeting very soon after, and that meeting, apparently quite satisfied with the work of the Instructors Committee, passed a resolution that the small Committee should continue to function. This measure could, however, be introduced only by the Board of Management which had the power to alter or amend the Bye-Laws of the Board of Management and as the Board had not since amended the Bye-Law, it remained in operation as it stood. He was aware that several members of the Board were not satisfied with the situation as it obtained at present—that is, with a small Instructors Committee.

The resolution was seconded by Mr. Thompson.

Mr. Stuart said that the members of the Board were responsible to the Island for the efficient running of the Society. The Instructors Committee controlled by far the most important activities of the Society and if the control of these activities were to be taken from the Board, its operation would be almost unnecessary. The members were placed on the Board because it was felt by the country that they were keenly interested in agriculture and economic progress. If it was felt that seven members were sufficient to look after the most important functions of the Society then it would be better to reduce the membership of the Board of Management to seven. Everyone was satisfied that the Director of Agriculture should be the Chairman of the Instructors Committee and that point was apparently the one that Government wished to gain. He did not see that anything would be lost by giving all the members of the Board the opportunity of helping in the administration of the activities of the Instructors Committee.

Mr. Little said he thought that it was more desirable that all the members of the Board should participate in the work of the Instructors Committee. This would make the interest wider as it would

include the views of men from all the different sections of the Island as represented on the Board. At the present time the report of the Instructors Committee was submitted only for the information of the Board and no suggestions could be offered by other members no matter what ideas they had.

Mr. Burke made the point that as representative a committee as possible for the control of the work of the Instructors was most desirable.

Mr. Dunkley suggested that all parties would be satisfied if the Bye-Law was altered just to include the Director of Agriculture as Chairman.

Mr. Maxwell said that in his opinion the suspension of Bye-Law No. 15 by the Half-Yearly Meeting was *ultra vires*. He did not think that the Instructors Committee with the personnel of the Board was too big a committee to operate effectively. There was one disadvantage which existed with the committee as it stood, and that was that its reports, submitted as they were only for the information of the Board, deprived the members who were not on the committee of the right of expressing any views on the important matters dealt with by the Committee.

Messrs. Phillips and Cawley both mentioned points in the history of the changes of the personnel of the Instructors Committee.

Mr. Maxwell then moved as an amendment to Mr. Seymour's motion.

"That Bye-Law No. 15 of the Board of Management of the Jamaica Agricultural Society shall be amended to read as follows :

"There shall be an Instructors Committee consisting of all the members of the Board of Management, with the Director of Agriculture as Chairman, three to form a quorum, to have executive authority over the Instructors with regard to field work and to report to the Board of Management for information.

The Committee shall meet at 10.00 a.m. on the first Wednesday of each month unless the Committee by resolution fixes otherwise."

This was seconded by Mr. Little.

This resolution was carried, seven members voting in favour of and four members against it.

The amendment was duly declared carried.

(b) *Mr. Phillips re Instructors Committee*. In view of the decision regarding the Instructors Committee this resolution was tabled.

(c) *Mr. McKay re Experiment and/or Breeding Stations for Canes*. Mr. McKay moved the following :

"Whereas due to the steady march of Panama Disease and the incidence of Leaf Spot the Sugar Industry has become increasingly important to Jamaica and whereas through the competition of other sugar producing countries coupled with the depressed condition of foreign markets it is necessary to have the greatest efficiency in Field and Factory;

Be it resolved that Government be asked to consider the advisability of establishing through the Department of Science and Agriculture experiment and/or breeding stations in different parts of the Colony for the purpose of procuring the best cane in tonnage and sucrose content to be distributed to planters."

Mr. McKay said that the Cane Farming Industry was becoming more and more important to Jamaica and it was desirable that efficiency should be upheld in the field as well as in the factory. He felt that statistics with regard to tonnage as well as sucrose content was very necessary. He said it was the duty of the Department of Science and Agriculture to establish stations throughout the

Colony. The reason why he did not think such stations should be at Hope was that different varieties of canes were suited to different sections of the Island and that made it imperative that if these stations were to be useful they should be established in various sections of the Island covering as far as possible the different conditions of all cane growing sections.

The resolution was seconded by Mr. Cawley and unanimously carried.

Communications.

(a) *Letter from C.S.O. re Railway Passes.* The Secretary presented the following memorandum:

To The Board of Management:

This matter was first brought up by Mr. D. D. Phillips who represented that non-liability concessionary tickets were issued to the members of the Board of Management in return for passes.

2. The Board directed that the Government be written to pointing out that members should be issued with ordinary tickets. This was done and a reply was received intimating Government's inability to accede to the request.

3. The matter was further taken up by the Board and a deputation interviewed the Colonial Secretary who promised to take the matter up further with the Advisory Board of the Railway.

4. This letter is a reply to the submissions made by the deputation.

(Sgd.) ARTHUR THELWELL.
Secretary.

The letter was as follows:
No. 992/31

3rd March, 1939.

"With reference to your letter No. 145 of the 26th January, 1939, in regard to the issue of railway passes to the members of the Board of Management of your Society, I am directed to inform you that the Government regrets to be unable to alter the conditions under which concessionary tickets on the Railway are at present issued to members of the Board of Management of your Society.

2. It is universal Railway practice that concessionary fares carry a non-liability clause, and the only persons who obtain passes free of conditions on the Jamaica Government Railway are members of the Legislative Council and members of the Railway Advisory Board."

(Sgd.) J. D. LUCIE-SMITH,
for Colonial Secretary.

Mr. Cawley suggested that a strong letter be sent to the Governor setting out the whole position as he felt that the request of the Board should be granted.

Mr. McKay said that Government's reply indicated that they had no interest in the members of the Board who attended meetings of the Society from time to time to advance the agricultural interest of the Colony. The present concessionary tickets issued to members entailed the risk of dependence of members who used the tickets, being deprived of any consideration by Government should the member, through any negligence on the part of the Railway, suffer injury or loss of life. He moved that the Hon. Geo. Seymour Seymour, Hon. and Rev. J. W. Maxwell, Mr. T. J. Cawley and the Secretary be delegated to wait upon His Excellency Sir Arthur Richards and place the matter before him.

The resolution was seconded by Mr. Cawley and agreed to as also was the suggestion of the Chairman that Mr. McKay be a member of the Deputation.

(b) *Letter from C.S.O. re Jippi Jappa Industry.* The following letter was presented and noted:

7828/84

28th February, 1939.

"With reference to your letter No. 878 of the 18th February, 1939, forwarding a report on the scheme for the training of certain Special Instructors at the Kingston Technical School in the manufacture of slippers from Jippi Jappa straw, I am directed to inform you that the Government is pleased to receive the report and appreciates the useful work which is being performed by your Society in connection with the scheme."

(Sgd.) U. C. ROBERTS,
for Colonial Secretary.

Mr. McKay asked what was the result of the recent exhibition at Miami of articles made by the Jippi Jappa class.

The Secretary replied that the results were very excellent and orders resulting therefrom were awaited.

The Secretary was congratulated on the success of his activities in this direction.

(c) *Letter from Buxton Town Branch re Sale of Local Foodstuffs.* A letter was submitted from the Buxton Town Branch congratulating the Society on the success it had achieved in getting the control of a portion of the food supply to Government Institutions.

The Secretary was directed to thank the Branch for their expressions.

Reports from Committees.

(a) *Re Instructors.* The Secretary read the following:

5th April, 1939.

The Instructors' Committee met this morning and report as follows:—

1. *Demonstration Plots.*—Report on the survey and financial statement were presented and it was decided that a special meeting of the Committee be called for 14th April, 1939, at 9.30 a.m. to discuss the report and decide on the future policy with regard to the plots.

2. *Resolution from Instructors' Conference re School Gardens.*—On the invitation of the Chairman, Mr. Hughes of the Department of Education attended and explained the work of this Department in relation to School Gardens. He also expressed the appreciation of his Department with regard to the work done by the Agricultural Instructors in these gardens. After a free discussion between Mr. Hughes and the members of the Committee, it was decided that the Education Department should draft a circular stating clearly the position between the Supervisor of Agricultural Training and the Instructors, and that a copy of that circular be submitted to the Committee for their consideration and approval.

It was also decided that there should be regular half-yearly discussions between officers of the Education Department and the Agricultural Society with regard to the policy of School Gardens in the whole Island.

3. The Secretary reported that Mr. Marr had resumed duties as Instructor for St. Andrew on 1st April, 1939.

4. Applications for the positions of Assistant Instructors advertised for, were presented and nine names selected to appear before the Committee on Friday 14th April, 1939.

5. *Potatoes—Blight Control.*—The Committee recommends that a sum of £30 be approved for demonstrations and assisting growers in spraying their potatoes against blight.

6. *Loans.*—Applications for loans from Messrs. H. Heron, M. N. Thompson, J. A. Graham, and G. W. Wray were not granted.

7. *Leave of Absence.*—Three weeks leave of absence during April has been granted to Instructor Thompson.

Two weeks as from 11th April has also been granted to Foreman Rhone.

8. Application for affiliation from Church Hill in Hanover is recommended to the Board.

(Sgd.) G. A. JONES,
Chairman.
(Sgd.) ARTHUR THELWELL,
Secretary.

The meeting adjourned for luncheon.

Resumption.

On the resumption there were present: Rev. W. J. Thompson, in the chair; Mr. McKay, Hon. and Rev. Mr. Maxwell, Hon. Maurice Segré; Messrs. Burke and Stuart, Mr. Bacquie, Supervisor of Instructors and the Secretary.

Messrs. Cawley and Dunkley attended during the course of the meeting.

On the motion of Mr. Maxwell seconded by Mr. Burke, the report of the Instructors Committee was adopted.

(b) *Report of Committee re Marketing.* The Secretary stated that the Committee appointed in this connection had met the Director of Agriculture and the Marketing Officer, and the decisions arrived at at that meeting were conveyed in the following report:

17th March, 1939.

Meeting: Committee Jamaica Agricultural Society and Marketing Division re Arrangements for Marketing, held 15th March, 1939.

1. At the regular meeting of the Board in March a Committee was appointed to discuss the future policy in regard to relations between the Society and the Marketing Division and the functions which each entity should perform in order to prevent overlapping and to effect the highest efficiency and collaboration in the work.

2. A meeting was held at the Marketing Division on Wednesday, the 15th March. Present were:—The Director of Agriculture, Hon. G. Seymour Seymour, O.B.E., Rev. W. J. Thompson, Mr. U. Theo. McKay, Mr. T. P. V. McDaniel, Mr. H. G. Dunkley, the Marketing Officer and the Secretary of the Society.

3. The following decisions were reached:—

(a) That, in future, while the Field Officers of the Marketing Division will have to retain contact with growers, more especially in regard to the collection of produce and the provision of supplies of seed, fertilizers and other requirements on credit, the actual field instructional work should be carried on by the Officers of the Society who, it is understood, will work in the closest collaboration with the various officers of the Marketing Division.

(b) In order that this system should work as efficiently as possible, consultations will take place from time to time between a small Committee of the Society and the Marketing Officer and his senior staff, with a view to deciding upon planting programmes and the rotation of crops. In these discussions, the Director of Agriculture will, of course, also figure, it being understood that the Department's work is more of an investigational and advisory nature than direct extension work which appears to be within the province of the Society.

(c) In order to assist in the disposal of crops, Instructors and other officers of the Society will at regular intervals make returns in duplicate, one to the Secretary of the Society and one to the Marketing Officer, in regard to the supplies of various sorts of produce which are available.

(d) The taking up of such supplies will be effected by joint association between the Society's officers and the Marketing Division's officers.

(e) In regard to trading generally, it is understood that the Society will obtain its supplies of all locally produced commodities by arrangement with the Marketing Division, thus making the Marketing Division the sole purchasing entity.

(f) In so far as sales are concerned, the Marketing Division will deal with the wholesale business and the Society with the retail business. It was agreed that both entities will continue to sell seed potatoes and fertilizers, it being recognized that the continuation of a credit system under supervision (such as is being operated by the Marketing Division) is desirable.

(Consideration would, however, be given later on to the extension of a Credit System especially for Seed potatoes to enable the Society to operate the System through the Marketing Division.)

(g) In order, however, to effect economies, joint purchasing of supplies from abroad and arrangements for distribution will be planned in detail between the Society and the Marketing Division.

(h) The Marketing Division will supply the Society's requirements of locally produced grain and other constituents of poultry and cattle feeds, grinding or manufacturing such products, where necessary, at a minimum of profit in order to supply the Society for its retail trade at as low a price as it is possible to do within reason.

(i) In view of the lower cost of electricity used by the Marketing Division, consideration will be given to the existing corn mill being transferred from the Society to the Marketing Division at a fair valuation.

(j) The arrangements in regard to the supply of vegetables, ground provisions and similar articles to Government Institutions, it was agreed, should be operated by the Marketing Division in association with Messrs. I. C. Maynier & Company on the lines already discussed between the First Vice-President of the Society, the Secretary and the Marketing Officer.

The Society's officers should assist in giving information concerning available supplies.

4. During the discussions the question of the Society operating a retail Health Food Shop, which would involve the sale of vegetables, was considered, but it was agreed that at the present moment it was not desirable to enter into competition with the Corporation markets. It was agreed, however, that retail trade in other commodities was desirable and that extended space was necessary on the Society's premises. The Marketing Officer stated that while a small amount of retail trade was carried on at the Marketing Division, this was not encouraged, as the Marketing Division had no intention of diverting the retail trade from the existing channels of trade and the Corporation markets.

F. E. V. SMITH,
Development Marketing Officer.
ARTHUR THELWELL,
Secretary.

On the suggestion of Mr. Maxwell, the Secretary was directed to circulate the report.

(c) *Re Coffec.* It was decided that this report should be deferred for submission to the next regular meeting.

(d) *Shows.* The following report was submitted:—

Your Show Committee met on the 1st March and beg to report as follows:—

Lease Mona Show Grounds:

- i. That the arrangements for the Lease of part of Mona be approved by the Board of Management and the Lease duly executed.
- ii. That the Board approve of the sum of Eight Pounds eight shillings and two pence (£8. 8. 2d.) for rent per annum and that suitable arrangements be made for the fencing and up-keep of the grounds.

May Pen Pen Show Grounds.

Your Committee also recommends:—

1. The acceptance of the free gift of lands by the Custos of Clarendon to the Clarendon Branches Associated:
- ii. That the lands be vested as suggested by the donor:
- iii. That arrangements be made and funds provided for fencing and beautifying the grounds.

Hanover Agricultural Show:

- i. A Report from Instructor Hastings has been circulated.

The Show was a success and your Committee recommends that the parties responsible for its organization be commended.

- ii. With regard to the failure of the Instructors to stage an exhibit from the Parent Body, the Committee finds—after consideration of the correspondence relating to the condition in which the exhibits were returned to the Head Office, that in spite of reasons given in the Instructor's Report there was not sufficient warrant for withholding the Exhibits from display.

(Sgd.) W. HARPER WATSON,
Chairman.
ARTHUR THELWELL
Secretary.

The Secretary said that with regard to the proposed lease the Society would be required to put in water pipes, and the lessee would pay the water rates and be responsible for the upkeep of the premises which he would use for grazing only.

The Board was agreeable to this.

In connection with the Show Grounds given by the Custos of Clarendon, on the suggestion of Mr. McKay, it was agreed that Mr. Muirhead's permission be obtained to include the Hon. Member for the Parish among the persons appointed to control the lands.

With regard to the failure of the staging of the Society's exhibit at the Hanover Show the Secretary was directed to send a strong letter to the Instructors concerned expressing the dissatisfaction which the Board felt in the matter.

It was also decided that in future suitable arrangements should be made in good time so that there would not be a recurrence of this kind.

On the motion of Mr. Maxwell seconded by Mr. Segré the report was adopted.

On the motion of Mr. Burke seconded by the Chairman, the standing orders were suspended to admit the consideration of items under:—

(a) Emoluments. (i) Secretary. The Chairman read the following:

To The Board of Management :

In April, 1938, the question of the Secretary's salary was considered by the Board and it was decided that, on the approval of Government being obtained, two increments should be paid.

2. Government decided that the matter should be brought up after the Secretary had served for one year. Due to the unsettled conditions at the time and changes in personnel of Government the matter was not dealt with.

3. In December the Board approved of a sum to meet this increase being placed on the Estimates for the current year. Government has, however, decided that as the original proposal has not been dealt with and approved by Government, this sum will be removed from the Estimates.

4. It is proposed to make this extra provision from the Seed Department. The amounts involved are as follows :—

For financial year 1939-40	£62 10/-
" " " 1940-41	£37 10/-
" " " 1941-42	£12 10/-

(Sgd.) ARTHUR THELWELL,
Secretary.

4/4/39.

Mr. McKay said the position was that the Secretary requested that a sum totalling two increments should be paid to him now which would entail expenditure as set out in the memorandum. When the Secretary was employed at Grove Place he enjoyed certain privileges, of which, service with the Society entailing his living in Kingston, deprived him. He did not think that the Secretary should be penalised especially considering the excellent services which he was rendering to the Society.

The Chairman said it should be remembered that the Secretary accepted the position under pressure and no one who knows could traverse the statement that the obtaining of the Secretary's services was a very good bargain. He did not see any reason why he should be deprived of the increment which would put him nearly on the status which he enjoyed at Grove Place.

He moved that the sum asked for be granted.

Mr. Burke seconded the motion and said he endorsed every word spoken by the two former speakers. He thought the fact that the Secretary had accepted the position under pressure should be taken into consideration.

It was unanimously agreed that the request contained in the memorandum be granted.

The Secretary having left the meeting when the question of his emoluments was being considered, returned and on the decision being conveyed to him, thanked the Board.

(ii) *Seeds Clerk.* The Secretary said he had an application from the Seed Clerk asking for an increase of salary. Continuing he said that the question of increased emolument to the Seed Clerk was considered by the Board on the 6th July, 1938, and an increase was not approved. The present emoluments of the Seed Clerk were £2 10/- per week plus 2½% on profits. It was estimated that the Seeds Department would net the sum of £600, in which case the Seed Clerk would receive a commission of £15.

It was astonishing how the work of the Department was increasing, and his view was the present salary with the small commission was inadequate for the person in charge. During the period of the Banana Improvement Campaign, the Clerk had received 10/- per week extra from the Department of Agriculture for the supervision of the despatching of chemicals in connection with the work, but this allowance had been discontinued since the campaign was completed.

Mr. McKay moved that the Clerk should receive a salary of £150 per annum without any commission on profits.

On the motion of Mr. Burke seconded by Mr. Stuart, it was agreed that the Seeds Clerk should receive a salary of £156 per annum and the commission as already agreed on.

This was carried with four members voting in favour of, and one member against the motion.

(iii) *Senior Clerks.* The Secretary stated that he had an application from the three Senior Clerks in the office for an increase of five shillings per week. Since 1930 they had received one increment of five shillings per week. He also stated that these clerks had, since last year when they received the increment, been drawing what had been set down as their maximum salary. They also asked that the matter of the regrading of salaries as undertaken for the Agricultural Instructors and as under consideration for Government employees be considered.

On the motion of the Hon. Mr. Maxwell seconded by the Hon. Mr. Segre it was unanimously agreed that the requests contained in the application be granted.

Messrs. Maxwell and Segre tendered their apologies and left the meeting and Mr. Cawley came in.

Diseases of Plants and Animals; Insect Pests.

(a) *Panama Disease of Bananas:* (i) *Report for December, 1938, and* (ii) *Report for the year 1938.*

The Secretary stated that these reports had been received and copies of them sent to individual members of the Board.

Small Stock Subsidies.

Applications from the following Branches were considered:

- (a) Bellas Gate—for half cost of buck.
- (b) Retreat — " "
- (c) Seaforth — " "
- (d) Bunker's Hill— " "
- (e) Troja — " "
- (f) Wilbury Lemon Hall—for half cost of boar.

The Secretary stated the requirements under the regulations governing small stock subsidies were fulfilled in each instance.

On the motion of the Chairman seconded by Mr. Burke, sums of £1 1/-, £1 11s. 6d., £1 10/-, £1 10/-, £1 10s. 6d., and £1 were authorized respectively.

Juvenile Branches.

(a) *Application from R. N. Murray for grant.* The Secretary stated that this was an application for a grant for the fencing of a plot. In July last year the Board considered two similar applications, but had not voted any grant.

The Secretary was directed to advise Mr. Murray that although the Board was in sympathy with the application, they had no funds from which a grant for the purpose of fencing could be made.

New Members.

On the motion of the Chairman, seconded by Mr. Burke, the following were elected to the membership of the Society:

Mrs. J. H. Forde, Lucea.

Miss H. L. E. Chambers, c/o Dept. of Science & Agriculture, Hope, Kingston.

K. G. Rogers, Highgate.

Walter S. Rohn, "Retreat," Rock River P.O.

M. E. Warren, Llandewey.

C. G. O. Rowe, c/o Nestle's Milk Products Ltd., 102 Harbour St., Kingston.

W. G. S. Vernon, "Worcester," John's Hall.

C. A. S. Hinshelwood, Manchioneal.

Mrs. C. G. Egerton Eves, Melinda, Stan Creek, Br. Honduras.

Other Business.

(a) *Letter from C. S. O. re Standing Committee on Agricultural Activities.* The following was submitted:

No. 1367/39

31st March, 1939.

"I am directed to inform you that His Excellency the Governor has decided to set up a Standing Committee to co-ordinate the activities of the Department of Agriculture, the Lands Department, the Marketing Division, the Jamaica Agricultural Society and the Agricultural Loan Societies Board, and to invite your Society to appoint a representative to serve on the Committee.

2. The other members of the Committee will be:

The Director of Agriculture, Chairman.

The Commissioner of Lands,

The Development and Marketing Officer, and

A Representative of the Agricultural Loan Societies Board.

(Sgd.) A. G. GRANTHAM,
Colonial Secretary.

Mr. McKay suggested that the Secretary be appointed to serve.

The Secretary stated that a discussion with the Director of Agriculture and the First Vice-President disclosed that the representative on the Board would be required to assist in decisions as to policies and then convey such decisions to the department which they represented.

Mr. Cawley said that the Secretary being an officer seconded from Government would not be at liberty to express his views as freely as he might wish.

Mr. Thompson having to leave the meeting vacated the chair which was taken by Mr. McKay.

Mr. Dunkley joined the meeting.

It was pointed out that an absent member could not be elected.

Mr. Stuart nominated Mr. Cawley.

Mr. Dunkley suggested that the matter be deferred until the next meeting when there should be more members present.

Mr. Burke said in his opinion the proper person to serve on the Committee would be the First Vice-President.

The Chairman said in view of the opinions expressed he would rule that the matter be deferred.

(b) *Letter from Eccleston Juvenile Branch thanking Society for assistance.* This letter expressed the thanks of the Branch to the Board for a donation and conveyed appreciation of the services rendered by the Agricultural Instructor and the Foreman for the district in all the activities of the Branch since its inception.

The letter was received and noted.

Reports from Committees.

(e) *Re Resolutions.* The Secretary submitted the report. Members expressed dissatisfaction at the procedure in regard to resolutions. They were advised that a Committee of the First Vice-President and the Secretary had been appointed to deal with resolutions and report to the Board.

Mr. Stuart gave notice that at the next meeting he would move that the matter be put on the Agenda for discussion.

The report was then read.

(f) *Report from Deputation to Lower Clarendon.* At the request of Mr. Burke this matter was deferred.

The meeting adjourned to Wednesday the 3rd May, 1939, at 11.30 a.m.

JERUSALEM ARTICHOKEs.

Notes on Crop Yields.

The following experiments were carried out in the Holly Hill School Garden, and recorded by the Headmaster Mr. P. M. Whittaker. Experiments of this nature deserve special mention—this due to their great interest and value to others, especially in the case of crops not hitherto grown to any great extent.

Experiments:

1 oz. planted 10/2/38—Reaped 1/9/38—Yield 9½ lbs.

2 ozs. planted 10/2/38—Reaped 21/11/38—Yield 24 lbs.

1 lb. planted 8/9/38—Reaped 12/3/39—Yield 12 lbs. (Very poor; note reason under observations (3).)

Soil: Heavy—well manured—No fertilizer used.

Observations: (1) Yield is better when planted in the Spring.

(2) Plants keep up better when planted in Spring than in Fall.

(3) Spring plants flower. Autumn plants will not and are diminutive in size.

(4) When plants dry down, tubers can remain in the ground until selling time. If dug up and kept in a moist place they rot.

Marketing: A fairly good market exists in Montego Bay during the tourist season, and the price is usually 7½d. per lb.

Remarks: Artichoke tubers resemble Ginger to a certain extent (outward appearance only of course) and planting is done by 'bits' of the tuber. The weights given above as planted were of bits of tuber—not seeds.

GILBERT WRAY,
Agric. Instructor.

NOTE:—An Article on Jerusalem Artichokes appeared in the Journal for November, 1938, page 469 (Vol. XLII, No. 2).



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THE COFFEE SITUATION.

ONCE again a Committee of the Society's Board of Management has considered and reported on the coffee industry. The report was published in the March issue of the Journal.

As is the custom on all occasions when specific crops are being dealt with, the committee availed itself of the advice of an expert—on this occasion, Mr. Percy Junor, who has had long experience in the coffee trade and has taken a great deal of interest in coffee improvement.

For a long time the coffee situation generally has been very unsatisfactory. Yields become lower and lower year after year; beans are smaller and poorer, and customers are buying less and less of our ordinary grades of coffee. We have but to continue with the existing policy of apathy and neglect for a few years longer and we will wake up soon to find that our trade in ordinary grades of coffee has disappeared entirely.

In 1936 a committee considered coffee and made certain recommendations. Little or no action resulted. The situation in the meantime has gone from bad to worse; the report had no effect.

Canada is our chief market for coffee of ordinary grades and up to 1931-32 the demand was fairly steady with a tendency to rise. Due to poor quality, this demand fell sharply, for while in 1932 Canada bought $9\frac{1}{2}$ million lbs., in 1933 the quantity fell to $6\frac{1}{2}$ million lbs.

This unsatisfactory state of affairs has continued right up to the present time and now shows itself in a serious fall in price. The $8\frac{1}{2}$ million lb. exports in 1937 was valued for £133,166, while the 9 million lb. in 1938 was valued for only £123,213.

From the marketing angle the trouble is simply one of quality. Coffee cured in the husk, or badly fermented, has an undesirable flavour called "earthiness." It is unpleasant to drink; nobody will buy it, so obviously the demand falls and the price drops.

Now it is known that this "earthy" taste is due entirely to neglecting to pulp, ferment and wash the berries; to picking green and turn berries and to leaving the coffee to cure in the husk. When left in the husk the berries over-ferment and result in a product which cannot be made into coffee good enough for people to drink.

Growers complain that when they have taken the trouble to pulp, ferment and wash their coffee, they receive no better price than other growers who save expense by curing in the husk. In this they have a real grievance.

In the past there was a fair demand for this very poor coffee—cured in the husk. It fetched a comparatively low price as it was used for blending with better coffee so as to produce a passable grade. The demand for this type of coffee is now very poor. Previously when competition in the markets were not so keen we managed to market this poor grade. These days we do not stand a chance. Too much really good coffee is on the market for buyers to put up with this inferior article.

The recommendation of the Coffee Committee is simple and clear. *Growers must provide themselves with the necessary equipment and pulp, wash and ferment their coffee, at the same time exercising the necessary care in picking only cherry ripe berries and drying the coffee on suitable barbecues.*

Strangely enough only certain sections of the coffee-producing districts persist in the old method of curing in the husk. Unless

the necessary improvements take place steps will have to be taken to protect those districts which take the trouble and bear the expense of proper curing.

It is on record that coffee grown down on the lowlands has brought as good prices as Manchester A grade purely as a result of proper curing.

A good cup of coffee is a rare thing in many homes to-day, due to the poor quality of the article sold by merchants. This reacts on consumption of coffee, as hundreds of persons have taken to tea.

Curing is but one phase of the question. The other has to do with the cultivation of the crop. Production and quality have fallen and continue to fall due to neglect of fields. Unless fields are pruned and cultivated yields will be low, berries small and inferior.

The result of an experiment in improved cultivation and fertilizing of fields was published in the Journal (Vol. XLII No. 6, June, 1938); growers are advised to read and copy the practices followed by the writer of the article.

We really must set about the improvement of our coffee industry from every angle or soon coffee growers will find themselves in a plight worse than that being experienced just now by Ginger growers.

A. T.

MARKETING.

FOR years considerable dissatisfaction existed in the method of supplying Government Institutions with fruit and vegetables.

Government awarded contracts on tenders from would-be suppliers who vied with each other in cutting prices so as to secure the contract. The contractors were never growers themselves; they bought from growers and supplied Government.

The prices which growers received for their commodities depended not only upon the price at which Government awarded the contract but upon the goodwill of the supplier who safeguarded himself by buying commodities such as yams, potatoes, cocoes, turnips, cabbages and other green vegetables at varying prices on varying weights. Prices were low and weights high.

It is said that as many as 160 lb. to the hundredweight have been exacted from growers of ground provisions. Be that as it may, a hundredweight instead of being a fixed unit of 112 lb. varied with the whims of the buyer and the state of the market. Prices were never fixed and in any case had no relative value. Each year they were lower and lower and reached a level where growers were unable to produce commodities and sell with the hope of a profit. A large number of cultivators therefore went completely out of business.

The Society brought this matter to the attention of Government by resolutions and representation continuously, but it was difficult to arrive at a satisfactory solution. Suggestions to control weight by Law was difficult to put into effect and control.

In October, 1937, a Vegetables Committee was appointed to consider the whole question and it was recommended that the Society should tender to Government for the supply of ground provisions, fruits and vegetables. A scale of prices which was considered economic was fixed. The Society was not, however, awarded the contract.

The question received further consideration and as a result of representation to Government a deputation waited upon the Colonial

Secretary in March this year. Government then decided to award the contract for the supply of ground provisions, fruits and vegetables jointly to the Society and the Marketing Division. A joint Committee consisting of members of the Board of Management and the Marketing Officer was appointed to fix prices and make detailed arrangements.

This has been a most welcome attempt to provide a solution for a delicate matter which was the cause of a lot of heart-burning, and was, moreover, directly responsible for a large number of persons giving up the cultivation of provisions. The new arrangements came into operation at the beginning of the new financial year—1st April, 1939,—and as neither the Society nor the Marketing Division was organized to undertake the work immediately, it was thought wise to make use of the services of an experienced firm under the combined authority and direction of the Society and the Marketing Division.

Prices were again considered by the new Committee and a schedule, which was far in advance of any previous prices was submitted to Government and accepted by them. These prices included two sets of figures, a minimum price payable to growers for supplies delivered in Kingston and the maximum price at which the commodities will be supplied to institutions. The schedule will be revised from time to time in the light of new experience by the Committee, but it is unlikely that lower prices for any article will be offered.

These prices as fixed are now known to the grower before any deliveries are made.

Arrangements are being made to take deliveries at railway stations and marketing depots where of course the price will be lower than for supplies delivered in Kingston.

In the arrangements it is made quite clear that members of the Society will receive preference for supplies.

It is well to call attention to the fact that the amount of provisions, fruit and vegetables used by Government institutions is limited and that it will be impossible to take all available supplies from every district. Every effort will be made to distribute the orders as fairly as is humanly possible and growers must abide by certain instructions which should by this be well known.

A return of available supplies must be made in writing to the Instructor for the area and no delivery must be made until a definite order has been received. Care must also be exercised in extending cultivation. It would be fatal to plant widely and indiscriminately without keeping an eye on the demand. Neither must other possible and established outlets be neglected. All surplus should be distributed to available markets.

The bigger question of dealing with commodities for other than supply to Government institutions is a matter for further attention.

The point to bear in mind just now is that planting must be regulated to possible demand. It is no use having a glut of turnips during some months, and no turnips for the remainder of the year.

With regard to some commodities, prices have been fixed with a view to increasing consumption, extending the area under cultivation and selling the whole of the crop.

Cabbage is a good example. At threepence per pound only a fraction of the crop can find a market. It is better to sell *all* the crop and *larger* crops at a penny per pound and so develop the market for an article which we can grow fairly easily, than to cramp its development by selling a small quantity at the higher price.

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Kingston Industrial Garage

This new arrangement is one more outstanding achievement attained by the Society during this year. During the first few months while the arrangement is getting into its stride, members should be patient and help to put the scheme through the initial difficulties which beset it.

Below is the first Schedule of Prices.

Items.	Rate.	Minimum prices to Growers.
Bananas, (Ripe) ...	dozen ...	1½d.
Bananas, (Green) ...	100 lbs. ...	2/3
Breadfruit ...	.. ...	2/3
Carrots ...	.. ...	8/4
Cabbages ...	.. ...	8/4
Cocoas ...	112 lbs. ...	8/4
Ginger ...	lb. ...	1½d.
Limes ...	100 lbs. ...	4/2
Mangoes ...	per 100 ...	1/-
Oranges, (Ripe) ...	.. (Winter Oct.-Feb.)	1/6
	(Summer Mar.-Sept.)	3/-
Ochroes ...	lb. ...	3d.
Peas, Congo ...	Bus. 64 lbs. ...	9/6
Peas, Red ...	.. (Native) ...	12/-
Potatoes, Sweet ...	112 lbs. ...	6/6
Pumpkins ...	.. ...	4/-
Turnips ...	100 lbs. ...	6/3
Tomatoes ...	.. (Feby.-May)	1½d.
	(June-July.)	3d.
Scallions ...	lb. ...	1d.
Yams (Yellow, Negro, Lucca) ...	112 lbs. ...	8/6
Yams (White) ...	.. ...	10/-
Yams (St. Vincent, Barbadoes) ..	.. ...	6/-
Yampies ...	.. ...	10/-
Chochoes ...	.. ...	6/-

Tomato and Cottage Cheese Salad (serves 6).

6 medium sized tomatoes 1½ cups of cottage cheese
Salt and pepper

Moisten the cottage cheese with a little cream and season with salt and pepper. Cut the tomatoes into quarters or eights to within half an inch from the stem. Spread the sections and sprinkle with salt. Place ½ cup of cottage cheese in each tomato. Garnish with sprigs of parsley or slices of green pepper. Serve with salad dressing.

Tomato and Asparagus Salad.

Peel, remove centre and chill, firm medium sized tomatoes. Fill centres with asparagus tips in upright position. Serve on lettuce with Mayonnaise Dressing.

HALF-YEARLY MEETING.

THE Half-Yearly Meeting of the Jamaica Agricultural Society will be held on Thursday the 27th July, at St. George's Hall.

Branches and Associated Branches are reminded that all Resolutions should be in the hands of the Secretary fourteen days prior to this date.

It will be well, in order to help along the business, if returns were made much ahead of this time.

Branches should also send in the names of their delegates to the Parent Society as soon as possible.

When these returns are sent in early, the work of making arrangements for the Half-Yearly Meeting is greatly assisted.

It is recommended that only Resolutions of general importance be sent up for consideration for inclusion in the Half-Yearly Agenda.

From time to time large batches of Resolutions dealing purely with domestic matters to which the Board could attend, are forwarded to the Secretary for inclusion in the the Half-Yearly Agenda and their sponsors are disappointed when they do not appear on the Agenda.

It seems a better thing by far to deal thoroughly with a few matters relating to Agricultural progress, rather than a multitude of minor matters affecting small sections of the community which could well be dealt with by the Board of Management. It is desirable that all resolutions be sent through the Branches Associated.

Direct members are especially requested to take note of the date of the Half-Yearly Meeting and to make every effort to attend.

The meeting this Half-Year promises to be full of interest.

REARING THE CALF.

WHEN Cows are allowed to calve in the field, little attention is needed except in cases of abnormal presentation. The Cow herself will select a sheltered dry place, and the calf will soon be on its feet and gradually begin to suck.

2. Where cows are allowed to calve in stalls in the dairy, the stalls should be well bedded with straw and disinfected before the animal is put in. Immediately upon calving the cow will lick the calf; but if she is to be broken as a Dairy Cow the calf should be taken away immediately, and be briskly rubbed with a wisp of straw to dry it so as to prevent its being chilled.

3. Difference of opinion prevails with regard to the length of time which the calf should be left with its dam. In some cases the calf is taken away immediately. This is the best practice if the calf is not very valuable, but if the calf is valuable, the first few days of its feeding is very important and it may be left with the dam for four or five days. The dam will give a little more trouble in "breaking" and it will want tack to get her to send down the milk when the calf has been left with her for some time, but the risk with the calf is less.

The navel cord of a newly born calf should be dressed at once with an antiseptic as a precaution against the entry of disease-producing germs. This treatment to the navel cord has the advantage of causing the cord to shrivel up quickly. Some persons use a lump of Blue Stone, others ordinary Jeyes. A good antiseptic is, one part Carbolic Acid in nineteen parts raw linseed oil.

When the calf is left with the dam it gets a much better start as

it obtains milk at the proper temperature in such quantities as it require. The animal then needs very little attention. There is some risk that a vigorous calf may take more milk than it can digest, but is not a great risk, during the first four days.

A young calf has a small stomach and its needs are met by small drinks of a nutritious milk (which is easily digested and is a laxative feed) at frequent intervals, a warm dry bed and plenty of time to sleep.

Feeding the young Calf.

A newly born calf must receive its own dam's milk—colostrum or biestings—for at least three days. This milk is rich in protein and mineral matter. It is much richer than ordinary milk, and contains bodies which give protection against many of the troubles of early life. It is laxative in effect and helps in getting the young calf's digestive system into working order.

Calves which are allowed to suckle from dams for four days or longer get the the colostrum in a natural manner; when they are removed at birth, this colostrum should be given in three feeds daily, about one quart at each drink.

If the calf is removed from its dam or the dam dies after calving and no colostrum is available, a useful substitute feed for the first three days is made by whipping an egg with half pint of warm water, adding half a teaspoonful of castor oil and stirring in one pint of milk for each feed. This should be the ration for calves for three or four days.

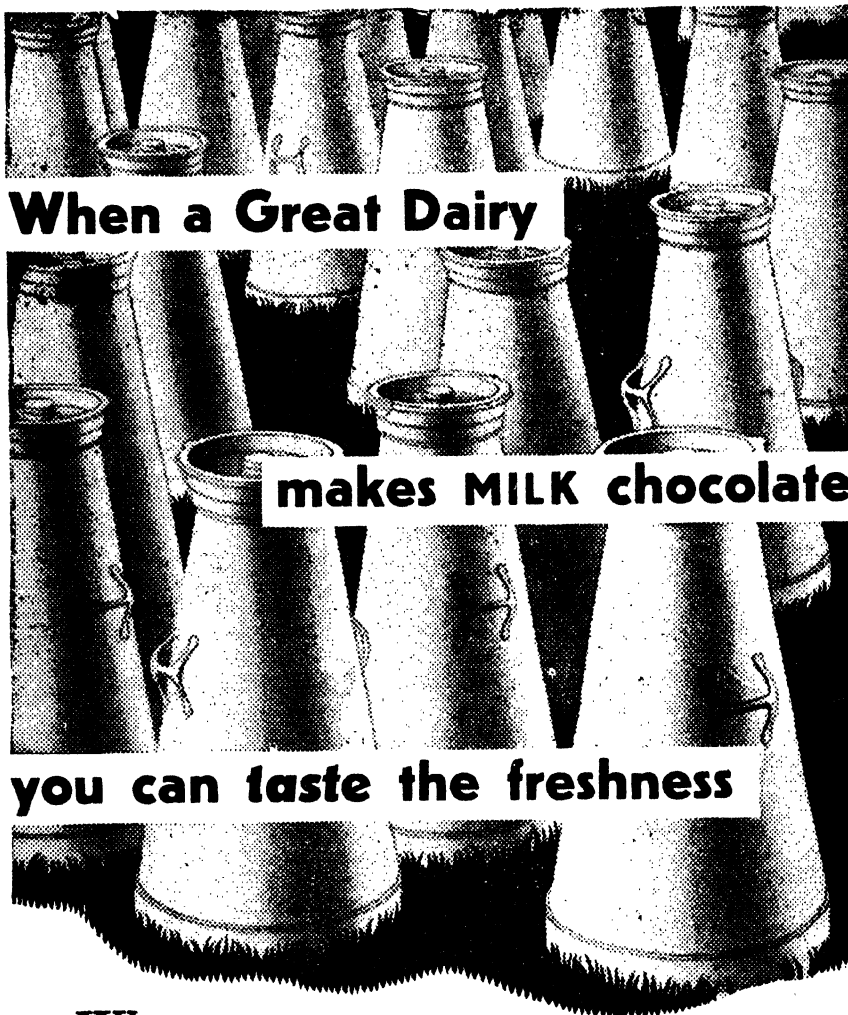
Very little attention need be given to the calf that is left to suck, save that for the first week or so, attention should be paid to the dam's udder so that any quarter not patronised by the calf, may be hand-drawn and so prevent garget and other troubles of the udder.

Hand Feeding.

The milk should be of the right temperature and should always be of the same warmth at which it is drawn from the cow, i.e., 98° to 100° F. To make sure that this is so, the milk may be warmed, but the most practical way is to add a little hot water. It is better, however, to err on the side of having the milk not warm enough, rather than too hot.

The calf should be induced to drink by placing the two fore fingers in the calf's mouth and lowering the hand into the vessel with the colostrum. Usually the calf drinks with very little trouble but sometimes patience is required before it discovers its ability to drink. After the third day the use of the fingers may be discontinued, and the animal allowed to drink naturally from the pail. By this time it should be drinking about three pints per meal.

Young calves are often brought from the Government and other Farms and taken long distances under very trying conditions. On arrival they are usually very thirsty and the tendency is to give them a good feed at once. This is a great mistake and is responsible for much of the scouring from which purchased calves suffer. The best method is to give a small dose of castor oil and a little stimulant in warm milk as soon as the calf arrives, and then after an hour or so feed a small meal of milk diluted with warm water. For the next few days the calf should continue to receive small quantities of milk at a time and should be fed about four times a day. If the least sign of scour appears, a dose of castor oil should be given at once, the milk omitted at the next feed and boiled water given instead.



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NESTLÉ'S
milk chocolate

For a day or two afterwards, a reduced allowance of milk diluted with 1 part of water to two or four parts of milk should be fed three times per day.

Lime water may be mixed and used in the dilution with the milk or fed straight. A lump of chalk placed in the pen so that the calves may lick it is good practise. When these first difficulties have been overcome, the calf should be fed regularly two or three times per day on whole milk until it is about two weeks old and subsequent feedings will vary according to conditions and will be dealt with in some later notes.

Some important points to remember are regularity in time of feeding and the quantity and quality of the milk used. The milk should be always sweet and should be of the right temperature and the feeding vessels used should be kept scrupulously clean. Any change of feed should be introduced slowly and a careful watch should be kept for other troubles, such as lice and ringworm.

A. T.

(To be continued.)

CARE OF SEEDED ORANGES AND GRAPEFRUIT.

By C. V. ATKINSON, Agricultural Instructor.

Introduction.—While every encouragement should be given to the establishing of improved varieties of Citrus, seeded varieties already established, should be given some care and not left severely alone until reaping time.

There was a time when pruning and cleaning of these trees was done yearly with excellent results. Owing to poor demand and low prices, growers have discontinued these good practices—the results being pest-infested trees and the production of inferior fruit.

Pruning.—At the end of the fruiting season and before the trees flower, all dead and injured limbs and twigs should be neatly removed from the trees and the surfaces of large cuts tarred. At this same time all undesirable limbs should also be removed.

While pruning is being done all "wild pines" and other parasitic plants should be removed.

Spraying.—If seeded varieties are to be allowed to remain on holdings, they must also be sprayed. If this is not done, these plants will become "host plants" for scales and fungi and will be largely responsible for frequent sprayings to the budded plants on holdings. It is therefore very advisable to give these plants at least two series of sprayings each year.

Cultivation.—It is necessary to cultivate these plants so as to improve the yield per tree and compensate for low prices.

General.—The percentage of rejections from seeded varieties from St. Ann is very high. If the trees were given better attention, rejections would be less.

Oranges in St. Ann do not "hang" well on the trees. Lack of care may be partially responsible for this—for uncared trees are a prey to the Stem End Rot fungus which causes the fruit to fall early. This is most pronounced where the reaping season is generally wet—a condition that favours the spread of the fungus.

This is an appeal to large and small proprietors, especially in St. Ann, to spend some time and money on these plants, so as to obtain better results.

If the trees cannot justify the cost they should be replaced by budded varieties, or if possible, top-worked to them.

WHITE YAM COMPETITION, ST. ANN.

THIS year's competition showed marked improvement on the previous one, largely as a result of employing the best methods indicated by last year. The Competition has been very keen.

This year's competition showed marked improvement on the previous one, largely as a result of employing the best methods indicated by last year. The Competition has been very keen.

Owing to the late announcement, there were only 35 entries—21 from Eastern and 14 from Western St. Ann. Of these, 9 were subsequently withdrawn.

The Walker's Wood area must again be complimented on the success of its competitors. That area has a peculiar advantage in the availability of cow's manure, which has proven itself an ideal manure when properly and adequately applied,—say half to one barrel per hill.

The marks were awarded as follows:—

Manuring	...	10%
Mulching	...	5%
Cultural Methods	...	10%
Organization and Effort	...	5%
Actual results by weight	...	70%

The 1st Prize goes to E. Gordon of Walker's Wood
with 538 lbs. ... 95 marks.

The 2nd Prize goes to A. B. Christian of Brown Town
with 470 lbs. ... 85 marks.

The 3rd Prize goes to C. Stewart of Walker's Wood
with 500 lbs. ... 84 marks.

Other prize winners are:—

D. H. Brown, Ramble P.O.	...	83 marks.
H. Jobson, Walker's Wood P.O.	...	81 "
C. Long, Gibraltar P.O.	...	78 "
J. B. Greaves, Alexandria	...	77 "
M. Weir, Walker's Wood	...	71 "
L. Walker, Bamboo P.O.	...	71 "

The results serve to emphasize the following points:—

1. Organic manure properly applied, proper soil preparation, length of sticks are of vital importance.
2. Bits give as satisfactory results as heads, the former being first aired, set, and sprouted before planting:
3. Manure must be applied in the spaces between the hills and not in the hills.
4. Proper spacing greatly offsets chilling.

The method conducive to best results is this:—

- (i) Weed the land.
- (ii) Fork thoroughly and open hills, say eight feet apart.
- (iii) Plant at least two or three weeks after, then stick. Plant one head per hill, a wt. of head being 6 lbs.
- (iv) Spread manure in intervals between hills and turn in lightly.
- (v) Mulch after plants have run out sticks and are about to break hands.
- (vi) Keep free of weeds.

The following observations on the above method should be of interest:—

- (i) Where fly-penning is done, land should be forked at least six weeks before planting and all organic matter turned under.

- (ii) Where hills have been left open but the land has not been forked, forking may be done between the hills at time of planting.
- (iii) By avoiding mulching at the outset, a deep root-system is encouraged. At the time of breaking hands an extensive root system is about to be developed. The mulching encourages this near the surface.
- (iv) Planting season varies from March to June according to locality. It is gratifying to note the fillip given the industry by the two successive competitions.

(Sgd.) C. M. A. ROBOTHAM.

(Sgd.) C. V. ATKINSON.

AGRICULTURE WITH BEEKEEPING.

By JAS. H. BLACKWOOD.

BECAUSE Bees excel all other insects in the fertilisation of flowers is sufficient reason why the Agriculturists, the Agricultural Society, the Development Board, and the Department of Agriculture should take much interest in beekeeping. Because careful experiments have proved that fruit-producing trees benefit when their pollination is assisted by the systematic work of bees, the claim that beekeeping is a desirable adjunct to agriculture is not without value. Competent authorities estimate that the help of bees in pollinating blossoms produces an annual return to agriculture many times the value of actual honey reaped by the apiarists.

Here is another phase calling for consideration and investigation. Unwelcome conditions compel agricultural practices, such as chemicals, powders and sprays for destroying plant diseases and insect pests. These practices seem unavoidable, but they may be doing also much that is harmful by upsetting nature's balance by the destruction of millions of pollinating and other beneficial insects. If this proves an indisputable fact, then the effective ready-at-hand remedy would be the introduction into plantations of many strong colonies of bees. And every encouragement should be given to bee-keepers to maintain their apiaries in the various parts of the Island at full strength all the year round.

With strong colonies at work at those seasons of plentiful nectar, honey production would increase and there would be better harvest of fruits. A daily honey eating habit campaign would bring more people to know of the value of honey as a food. Effective local demand would reflect in larger honey consumption and desired improvement in general health of the Island.

Local bottlers of saleable honey as well as consumers should do away with the crude way of honey being put up in ordinary pint bottles, when suitable containers, convenient to the housewife can readily be obtained.

Is it not time that dining tables in the homes and in the hotels be supplied at each meal with jars of Jamaican delicious and healthful honey? Is it not time that the bakeries get in line with those of California and other American cities by using honey instead of sugar in the manufacture of all their saleable products? And may not teachers bring many-sided benefits to themselves and others by devoting part of their leisure to apiculture?

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ARMSTRONG STANDARD SPRAY PUMP
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THE PAPAWE OR PAPAYA.**(Carica Papaya)*

THE papaw or papaya (erroneously called paw paw and which is an entirely different type of plant indigenous to Central U. S. A.) is a typical tropical plant and is a native of tropical America. It thrives best in a soil rich in organic matter possessing good drainage, in a sunny position free from boisterous winds.

The Plant.

This is a fast growing herbaceous plant possessing usually an erect trunk attaining a height of 10 to 25 feet, which is fleshy and hollow. The leaves, which are large, sometimes 2 feet across, are dark green and are produced in clusters at the top of the plant on hollow, smooth stiff stalks. This growth is erect in the early stages of development but later as the leaf stalks grow, they bend outwards and then downwards, giving the plant a palm-like effect. The life of a leaf varies from 4-6 months and at the axils or union of the leaf stalk and trunk the flowers are produced.

The Flowers—Male and Female.

The papaw is normally dioecious, i.e., with the staminate or male and pistillate or female flowers produced on different plants. In addition to the staminate and pistillate forms, intermediate forms have been observed in which flowers of each sex occur in one plant. Staminate flowers may occur with rudimentary stigmas and ovaries which give rise to small worthless fruit and there is a hermaphrodite or bisexual type which regularly produces perfect flowers, is self-pollinated and yields excellent fruit. (While fruit of the staminate tree have been described as worthless there are instances of large and good-flavoured fruit having been produced but possessing thin skin and soft flesh which make them unfit for transport to market.) In the dioecious type the staminate or male plant the flowers are white, about an inch long and are borne in clusters on long pendent racemes sometimes 5 or 6 feet long, while the pistillate or female plant produces creamy yellow flowers about two inches long close to the trunk of the plant on short thick stalks from half an inch to two inches in length. Both types of flowers emit a very pleasant scent.

It appears that nature holds the determining of the papaw sex as a close secret for although many and varied are the suggestions that have been expounded concerning the determination of sex in the early stages of growth of the plant, the writer has yet to be convinced that any of the so-called "positive tests" are reliable except that the more vigorous plants in the nursery may possess a greater percentage of female plants. This line of selection is desirable apart from the viewpoint of sex, in that the most vigorous plants are the quickest to flower, thus maturing an early crop and such crop is usually borne low on the plant which facilitates harvesting.

*Adapted from an Article by G. B. BARNETT, Tropical Adviser, Department of Agriculture in *Journal of the Department of Agriculture, Western Australia*, March, 1938.

The Fruit.

The shape of the fruit varies from oblong to round, depending not only on type or variety. Soil, season, climate and cultural conditions seem to have considerable bearing on shape. The fruit when first developed are creamy white, but quickly take on a dark green colour. The weight varies from 1-10 lbs. when mature. When ripe the skin is smooth, thin and usually of a yellow to deep orange colour, while some types are pale green and are not considered very favourably by the trade. The flesh is of firm butter texture and possesses a yellow to orange-yellow colour. In the centre of the fruit is a fairly large cavity where are carried numerous round or oblong-shaped black seeds. The thickness of the meat or flesh varies from half an inch to two inches.

Methods of Propagation.

The papaw may be propagated from cuttings, by grafts or seed, the latter being the commonest and to date most satisfactory method.

Cuttings are most successfully rooted when small limbs are removed from plants and care is taken to see that the natural swollen growth at the union of the small limb and parent plant is attached to the cutting.

Although this plant can be grafted successfully, there is little to be gained from this method of propagation for it has been observed that the parental qualities are not always retained except that the age of the parent seems to be transmitted in the scion. These facts appear to be present to the same degree in rooted cuttings.

Selection.

As already mentioned the propagation by seed is the best method. Little attention has been paid in the past in the matter of selection, with the result that many worthless strains are in evidence which are not only unremunerative but are a menace to the better types growing in the same vicinity.

Seed should be selected from the fully ripe fruit and from a tree known to be of a healthy, robust, heavy-bearing nature. The fruit should possess a thick leathery highly coloured skin, a flesh of firm texture and good thickness. The shape, if possible, should be oblong, as this appears to be favoured by the trade, and a medium sized fruit is the most popular. Fruit with a very prominent nipple at the calyx end should be avoided as this tends to ripen earlier than the main body of the fruit and is subject to bruising, thus detracting from its value when presented to the buyer.

The Seed Bed.

Seed may be raised either in beds or boxes which contain a good rich sandy loam. The seed should be planted soon after being removed from the ripe fruit but seed will retain a high percentage of germination for twelve months if washed after removal from the fruit and kept in an air tight jar in a cool place. The best time for raising seedlings is during the spring months. The seed should be planted in rows about 12 inches apart with 2-3 inches between seeds and covered with about half an inch of soil. The seedlings should be above ground in 2-3 weeks after planting in the spring. Thinning the seedlings out to 6-8 inches will encourage good sturdy growth.

The soil should be kept only moist as excessive watering may cause damping off. If the seed beds are in sunny positions the seedlings should be ready for removal to their permanent positions in two months from planing of seed when the seedlings should be 6-8 inches high.

Planting Out.

Several hours prior to transplanting, the seed beds or boxes should receive a liberal watering, and planting out should be done in the cool of the day. After selecting the most robust and vigorous plants, every care should be taken to avoid destroying the roots or the drying out of roots during transplanting. A thorough watering is advisable as soon after planting as possible, and once the plants show signs of being established, weekly irrigation should be sufficient. If planting out large seedlings, it is advisable to remove the majority of the leaves several days prior to planting, leaving portion of the petiole or leaf stalk attached to the plant.

Owing to the impossibility of determining the sex of the seedlings prior to flowering, it is advisable to adopt close planting and planting in pairs about 18-24 inches apart, allowing 3-4 feet between pairs, is suggested. The thinning out of males, which usually predominate, should be done as soon as detected, and they should be cut up and dug into the soil as they are a valuable manure for the remaining plants. No definite advice can be given as to how many males should be left as position of the plants has a considerable bearing on the matter, but as a guide 3 or 4 robust males should be satisfactory if well dispersed amongst 20 to 30 females.

While most plants have the tendency to develop the one upright stem, there are some that will develop lateral limbs early in life, which is very desirable as the plant then tends towards a low type growth carrying a larger crop of medium sized fruit low to the ground. To encourage the branching type habit, the growth may be nipped out when the plant is 3-5 feet high, but even this does not always force out the side vegetation. Some growers wait until the first main crop has set before removing the terminal growth when the branching habit can usually be obtained.

While plants may live for 10 or more years, it is usually found that after the second or third year the plant has produced its best commercial crops.

The plant readily responds to soil cultivation and liberal supplies of well-rotted organic matter, will be of much benefit, bearing in mind that if the plant is kept producing vegetative growth, there will be a constant cropping of fruit.

Harvesting and Handling.

Like most fruits the papaw attains its best flavour if allowed to remain on the plant until ripe, but this is not practicable if fruit is to arrive at the markets in good condition. The stage to harvest to metropolitan markets will vary with the season. During the winter months it is possible to allow the fruit to remain on the trees until a fair amount of colour is showing, but in the summer it is necessary to harvest as soon as the yellow colour commences to show on the fruit.

Harvesting should be done during the cool of the day by holding the fruit firmly and giving it a slight twist, when it should come away

with portion of the fruit stalk attached. The fruit should be handled with the greatest of care as it is very easily bruised and marked; even the slightest marking at harvesting becomes very pronounced when the fruit is ripe. If possible, the fruit should be allowed to sweat in a cool place for about 12 hours prior to packing. The fruit may be packed in the standard tropical case (24 $\frac{1}{2}$ by 12 inches by 12 inches, inside measurement), or during times of high prices the $\frac{3}{4}$ flat is more desirable. A layer of wood wool, dry straw or crumpled paper should be placed in the bottom of the case, and each fruit should be liberally wrapped in paper before being placed in the case, making sure that a padding of the paper covers the stem end of the fruit. The fruit may be packed either erect or lengthwise along the case. Never place the fruit across the case, for after lidding the case always travel on its side and fruit so packed are liable to receive damage to the stem or calyx ends. When packed the fruit should be slightly lower than the side of the case, and a liberal layer of wood wool, or crumpled paper should be placed over the fruit before lidding. The use of dead banana leaves as padding material is not to be encouraged for it not only detracts from the "get up" of the product but produces an unpleasant musty odour to the packed article. Use even grade fruit as far as possible, and upon the end of the case mention the count or number of fruit in the case.

Using the Fruit.

The most popular method of using the fruit is by cutting halves or slices lengthwise, removing the seed and to suit the taste, sprinkling sugar, salt, pepper, orange or lemon juice over it. Served in this manner it is a very popular breakfast dish. Some people prefer a few of the seeds to be served with the fruit as they have a flavour similar to water cress and are claimed to possess great digestive properties. This fruit is becoming increasingly popular in cafes when served with ice cream. Cut in halves with the seed removed, and port wine added, it makes a delicious sweet for the menu.

Great medical properties are claimed for the fruit and plant from which is produced a milk-like fluid which when dried to a white powder contains "papain" and is used in the manufacturing of special digestive foods and chewing gum. The papain is harvested by making slight incisions in the skin of the fruit and the exuding fluid is collected in small vessels and then dried and ground to a powder. One authority claims that to extract 1 $\frac{1}{2}$ lbs. of papain approximately, 1,500 average size fruit are required to be treated.

Pests and Diseases.

The plant is comparatively free from pests and diseases in Western Australia. Slight infestations of Red Spider have been recorded. The major loss of fruit appears to be from sun scald and slight fungus attack in the form of a rot which develops at the calyx end and exposed side of the fruit. The orange-piercing moth also does slight damage during drought periods.

Reasons for Crop Failures.

Crop failure, or fruit developing towards maturity and then falling from the plant, may be the result of blossoms being attacked by insects or disease, or unfavourable soil or climatic conditions at fruit setting

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stage. Excessive watering or manuring at this stage can also cause trouble, but where these conditions do not prevail it is quite possible that pollination is at fault. The shrivelling and dropping of fruit from the male tree is common and, if an inspection is made of the interior of the fruit, it will be found that the seed is undeveloped. Infertile fruit is usually insipid in flavour and the flesh is thin and leathery.

Note by The Editor:

The large-scale planting of papaw in Jamaica is not advocated as the plant is subjected to serious attacks from Mosaic Disease, especially on the warm plains. Mosaic of papaw is, for instance, very prevalent on the Liguanea Plains and trees in this area go down very rapidly.

There are many areas in the higher districts however, where papaw may be profitably grown—isolated trees throughout the holding being a fairly safe method against the time when an immune suitable variety has been bred.

Papaw has taken a great leap in popular favour and a good local market is now available.

It is suggested that old trees, which are no longer profitable but of good variety, be truncated.

The tree should be sliced cleanly across the trunk, about 6 feet from the ground, then circle forked, and mulched. Soon it will throw out a large number of side branches. Four or five of these should be selected, with an eye to the balance of the tree, and all the others pruned off. Soon these branches will set fruit.

Fruit borne on branches are of medium size and more manageable (most papaw fruit are too big for a normal family) and hang free of the tree, while fruit borne on the main stem of an ordinary tree rest against the stem and bruise on one side of the fruit which then rots readily.

Most papaw fruit ripen in the upper half first and if sliced straight through, results in a peg of uneven ripeness. The fruit should be cut clean across in halves and the upper half sliced and used while the lower half is left turned down in a flat dish to ripen. This gets rid of the nuisance of small flies which usually invade the precincts of a cut papaw.

A. T.

LIVESTOCK IN THE WEST INDIES.

By J. W. HOWE, Dip. Ag., B.S.A., M.Sc., Headmaster Government Farm School, Superintendent Government Stock Farm.

(Continued.)

The Hereford—The native home of the Hereford breed of cattle is in the county of Herefordshire in the south-west part of England. The breed is thought to have originated in this area, as a breed of cattle closely resembling the Hereford, has been raised there from very early times.

The *general* appearance of the Hereford is more massive than the Aberdeen-Angus, and appears heavier especially in the forequarters. The *head* is short and broad, with a pronounced dish to the face. The *horns* are large and tend to grow out from the head rather than up. The *neck* is short and thick, usually with a decided crest in the case of the bulls. The *dewlap* is sometimes excessive. The *shoulder* is inclined to be heavy, but is usually well laid in and well covered. The

body is large, with a well defined spring of rib. The *back* is strong and the top-line carried out level to the tail-head. The *rump* of animals of this breed is sometimes lacking in development, and is inclined to be rough and to lack the smoothness of other breeds. The *thighs* are inclined to be light for the size of the animal, and are often not as well fleshed as they should be. In *temperament* the Hereford is rather nervous, especially when kept in restricted quarters. This breed however is one of the best under range conditions, and is capable of rustling feed when on pasture. The *colour* of the Hereford is red and white. The face is white with this colour carrying over the top of the neck to the shoulder. White is also found on the brisket and under-line and on the legs and switch. The markings of the Hereford are a very pronounced characteristic of the breed. When the Hereford is used for crossing with other breeds, the resulting cross usually carries the white face of the Hereford breed. In *quality* this breed is excellent, the skin being mellow and the hair fine and abundant. The long hair of this breed disappears to some extent in the Tropics, and animals raised under such conditions usually show a much shorter hair than those raised in the colder climates. In *maturity* this breed is very good and while not giving as high a dressing percentage as the Aberdeen-Angus, the quality of the beef from the Hereford is excellent. The adaptability of the Hereford is good and animals of this breed are to be found in large numbers in the West Indies, either as pure-breds or crossed with the Zebu type of cattle. In *size* the Hereford is one of the largest of the beef breeds, the bulls weighing 2,200 pounds and the cows 1,700 pounds.

The Polled Hereford—This breed originated in the United States of America in comparatively recent times, and is not found in large numbers in the West Indies. The general characteristics of this breed are identical with that of the Hereford breed except it is polled.

The Shorthorn—The Shorthorn breed of cattle originated in the north east part of England in the counties of Northumberland, Durham and Yorkshire. As this breed was found in the valley of the River Tees, it sometimes is called Teeswater Cattle. The Shorthorn breed is thought to have originated from cattle originally brought to England by the Romans. By crossing these cattle with cattle brought to England by the Normans, the Shorthorn breed eventually evolved.

The Shorthorn breed of cattle conforms to the true beef type and is one of the best known of all the beef breeds, being found in all parts of the world where beef cattle are raised. In *general appearance* the Shorthorn is massive, low-set and blocky. The *head* is small, short and broad. The *horns* are short and smaller than those of the Hereford, and tend in the bull to grow out from the head, while the horns of the cow tend to grow outwards and upwards. The *neck* is short and smoothly attached to the forequarters. The *shoulders* are inclined to be rather open, but on the whole may be termed smooth. The top-line is strong and well carried out to the tail-head. The *spring of rib* of this breed is especially good and the *back* broad with a strong *loin*. The *flanks* of the Shorthorn breed are low and well filled. The *hind-quarters* of this breed are outstanding, being wide and deep with the fleshing carried well down to the hocks. In *quality* the breed is good, the skin being thin and the hair abundant and fine in texture. In *maturity* this breed is not as good as others of the beef type. The

colour of the Shorthorn varies considerably and may be red, red and white, white or roan. Animals of the solid white colour are not desired in the Tropics and solid red or red and white is preferred. For adaptability to conditions this breed is good, but for some reason is not found in the West Indies in as large numbers as either the Aberdeen-Angus or the Hereford. In *size* the Shorthorn breed of cattle compare with the Aberdeen-Angus, mature bulls weighing 1,900 pounds and mature cows weighing 1,500 pounds.

The Devon—The Devon while classed by some authorities as a dual-purpose breed is generally considered to be of the beef type, and in the West Indies this breed is not considered for the production of milk.

The Devon breed originated in the southwestern part of England in the counties of Devon and Somerset, and is thought to have come from cattle raised in that area from the earliest times. In *general appearance* the Devon is rather more refined than the other beef breeds. The *head* is fine, being rather longer than in the other beef breeds, and is horned. The *neck* is short and well blended onto the body, while shoulders are smooth, and the heart-girth strong. The *body* is compact and smooth, with a good spring of rib. The *hind-quarters* are well developed and fleshed well down. In *colour* the Devon is red. White is only permissible on the udder of the cow and the scrotum of the bull. In *size* the Devon is smaller than the other beef breeds, the bulls weighing 1,800 pounds and the cows 1,400 pounds. In *adaptability to conditions* the Devon breed has proved to be excellent for Tropical conditions and is increasing in popularity in the West Indies.

The Galloway—The Galloway breed of cattle is not as popular as the breeds previously mentioned and is to be found mainly in Scotland and England. Several herds are also found in Canada, but as far as it has been possible to ascertain no representatives of this breed are to be found in the West Indies.

The Galloway is one of the smaller of the beef breeds, mature bulls weighing 1,800 pounds and mature cows 1,300 pounds. The colour of the breed is black, with a long coat of hair. The breed like the Aberdeen-Angus, is polled. The breed conforms to the true beef type and is low set and blocky.

Owing to the long, heavy coat of hair peculiar to this breed, it is unlikely that the Galloway will ever become popular as a beef breed in the Tropics.

The West Highland—This breed of beef cattle originated in the Western part of Scotland, and is the smallest of all the beef breeds. The bulls weigh 1,200 pounds mature and the cows 900 pounds. The colour of this breed is red, brown or brindle, and the breed has long characteristic horns. The coat of hair on this breed is very heavy. The West Highland breed is not popular outside of its native home, and is not found in the Tropics.

French Fruit Dressing.

4 tablespoons olive oil or other salad oil; 3 tablespoons orange juice. 3 tablespoons lemon juice; 1 tablespoon honey.

Mix the ingredients with an egg beater or power whipper,

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PIONEER DEVELOPING SCRATCH

From 4½ or 5 Months on

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*For Table
Use Broilers
and Capons*

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PADDY CULTIVATION IN SIAM.*

W. R. S. LADELL,

Director, Division of Agricultural Research, West Indies Sugar Co.

THE Kingdom of Siam is a territory of 200,149 square miles. It is one of the three great exporting countries that supply the rest of the world with rice. Siam and Indo-China together export an amount not quite equal to that from India including Burma. The latter country is rapidly increasing its production and the amount available for export, and is now more than ever a serious rival of Siam.

Rice is the chief product of Siam and accounts for 85 per cent. of the exports and, moreover, is the staple cereal of the people. The well-being of the whole country depends on the rice crop and all branches of the community follow anxiously the progress of the crop from the time it is sown until it is safely harvested. The Kingdom of Siam is divided into fourteen circles for administrative purposes, and rice is grown extensively in each of these. The major portion of the rice that is available for export is grown in the plains and delta between the large rivers that empty themselves into the Gulf of Siam. This area lies in the seven inner circles of Krungdeb (Bangkok), Ayuthia, Nagor Chaisri, Rajaburi, Prachinburi, Nagor Svarga, and Bisnulok.

On these plains and deltaic tracts there are many inter-communicating canals, serving the double purpose of supplying the rice fields with water from the rivers, and with the help of locks and sluices, forming a system of irrigation by inundation which, supplementing the rainfall, greatly helps in the production of rice. These canals are also very important in providing, by boat, a cheap means of transport for the grain.

The natural means of supply of water for rice cultivation in the Great Central Plain of Siam are (a) rainfall and (b) a rise in the rivers to inundation level, so that the fields will be supplied with the water necessary for the growth of the crops.

The average annual rainfall is from 1,000-1,500 mm., and experience has shown that to mature a full rice crop 1,800 mm. is required.

After one or two failures, or partial failures of the rice crop, the Siamese Government seriously took up the question of irrigation in 1913.

Sir Thomas Ward came out to Siam in 1913, and after a year of tours and inspection, made a report embodying various irrigation schemes to ensure that the rice crop in the chief paddy-growing areas of the Great Central Plain of Siam should never fail. The first of these works, the South Prasak Canal, was completed in 1924, and has already justified its existence.

Complementary to the South Prasak Irrigation system is the Jiengrak and Bang Hia Drainage Scheme.

An interesting feature of this project is the construction of a main drainage canal with level and tidal sluices along the shore of the Gulf of Siam between Paktalong and Bang Hia—a distance of 60 Km. with a view to preventing the periodic tidal inundations from the sea, which formerly rendered fertile lands in the southern portion of the area covered by the Drainage Project, unsuitable for the cultivation of staple crops.

*Reprint from the "Tropical Agriculturist," Vol. LXXVII, No. 3 September, 1931)

By means of the sluices and fresh water canals the saline water from which these areas have suffered hitherto will be replaced by fresh water, and the area of rice-producing land will be added to very considerably.

The Varieties of Paddy in Siam.

There are a vast number of named varieties of paddy, but these may be classified into two main groups, viz., Glutinous Rice and Non-Glutinous Rice. The Glutinous Rice derives its name from the fact that it is sticky when cooked. Those varieties of Glutinous Rice, with coarse, large, red, purple, or blackish grain, form the staple food of the people in north and north-eastern Siam, while the Non-Glutinous grain constitutes the staple food of the rest of the Kingdom, as well as the principal article of export from Siam.

The classification of paddy is a very complicated question as the divisions into which it is possible to group the different varieties overlap one another and one variety may be known by many different names.

Hill Paddy.

This is known as Kao Rai or Kao Pa and is usually grown for the cultivator's own consumption. It is not necessarily planted on hills, but generally freshly cut jungle clearings are utilised. The cultivator cuts down large and small forest trees: roughly clears the land, dibbles in groups of paddy grains and sits and watches the result.

The crop is entirely dependent on rainfall. The soil from this virgin forest land is as a rule well provided with organic matter and possesses a good retentive capacity for water, but no water remains on the field.

Maize is often grown in between the paddy and neither crop is ever very productive. The fallen trunks and irregular mounds of soil from deserted anthills provide excellent cover for vermin of all sorts and rats are particularly destructive of the crops in all stages of growth. The cultivator finds after two or three seasons or often after only one season that his land is losing fertility and becoming infested with weeds, so moves on to another area, which he exploits in similar fashion.

This method of cultivation is extremely wasteful and should be discouraged as much as possible.

Cultivator's Classification of Irrigated Paddy.

The cultivator groups his irrigated paddy into three divisions according to their life periods, the Early, Medium, and Late ripening. There is no hard-and-fast line to be drawn between these groups. A Kao Nak in one part of the country may be known as Kao Klang Pi in another part and vice versa. As far as the Central Plain is concerned the classification is:

Early Kao Bao (Light rice)	2½ to 3½ months.
Medium Kao Klang Pi (Mid year rice)	3½ to 4½ months.
Late Kao Nak (Heavy)	5 to 6½ months.

These paddies can be planted by either of the two methods: broadcasting and transplanting.

Broadcasting (Na Wan).—As soon as the rains of May or early June have softened the soil sufficiently the land is ploughed and harrowed. The weeds and grasses are removed if excessively abundant.

The seed is then scattered broadcast over the surface of the soil which is given another harrowing to cover up the seed as far as possible, and nature is then left to do the rest.

In some areas the field is furrowed at regular distances (6-12 feet.) These furrows serve as drainage channels in case of too abundant rainfall during the germination period.

In Ayuthia and Klong Rang Sit and similar districts, large areas are devoted to Kao Wan, which area, in addition to the rainfall, benefit by the inundation from the rivers and canals (Klongs) when they rise to flood level.

The paddy from broadcasted areas is known to the rice miller as Na Muang or field rice and is generally of poorer quality than transplanted rice, which the miller calls Kao Na Suan or garden rice.

Floating Rice or Creeping Rice.—A variety of Na Muang is the floating rice sometimes known as Kao Khun Nam (the rice that rises on the water). There are certain areas in Siam where at the end of the wet season the water in the fields rises to a great height. The rice planted in these fields is able to keep pace with the rising water except in the case of an abnormally rapid inundation. The growing tips of the plant always remain above the surface and the stem shoots off roots at the nodes that are submerged. This enables the plant to extract mineral material for its growth from the water in addition to the main roots in the soil, which act as an anchor.

Some varieties of floating rice have only the one set of roots in the soil until the water starts to recede and then they send out rootlets from the upper nodes into the muddy water. The plant becomes a big leafy mass as the tillering increases, and finally resembles a small island of paddy floating on the surface of the water. When the water subsides the roots fix themselves in the mud, and the tops of the stalks break off at the nodes and form separate plants.

The stems of floating paddy sometimes reach the amazing length of six metres or more. Harvesting is done from boats and followed by a final gleaning after the flood has subsided, and the mud has begun to dry.

Transplanting (Na Dam).—The fields intended for transplanted paddy are divided from one another by small bunds (Kun Na) according to the contour of the land. In the Great Central Plain of Siam these bunds are almost straight, and the fields approximately rectangular. All through the dry season these fields are sunbaked wastes with little or no grass growing in them. The soil is hard, and cracked to a depth of 20 inches or more, and often they look more like the dried up bed of muddy rivers than potentially fertile fields.

After the first rains the dried up grass changes from brown to green, the cracks disappear, and when the rains have softened the soil sufficiently the land is ploughed. The cultivator usually selects a low-lying portion of his holding, and turns it into a nursery. The nursery is ploughed and weeded, after which buffalo or cattle manure is sometimes incorporated with the soil. If a canal is handy water is pumped on to the field, which is then allowed to soak for several days, subsequently the land is ploughed, and harrowed while still under water. This has the effect of producing a soft sticky mud of gruel-like consistency, which should be 20-30 cm. in depth.

The grain for planting is put in sacks or baskets soaked in water overnight, and put aside for three days until germination is well advanced, and the germinated seed is sown in the mud of the nursery.

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The grain does not sink into the mud, but lies on the surface, giving the nurseries an appearance of having been dusted with sand. After 5-7 days the nursery is covered with a bright green carpet of paddy seedlings that quickly grow to sturdy young plants, and after a month or six weeks are ready for transplanting.

Nurseries treated with phosphatic fertilisers grow more rapidly, and apparently the paddy is ready for transplanting earlier, but nevertheless it should be left there for the usual time to give it the advantage of starting in the field as healthier and sturdier plants.

When the fields have been prepared in a manner somewhat similar to the nursery, water is run on if necessary to flood the fields to a depth of 10 cm. or more. The seedlings are pulled up from their muddy home, the excess of mud is knocked off by the cultivator banging a bundle of them on his or her foot, and the bundle is then shaken into shape by dumping its roots downwards on to a little platform or table fixed in the nursery. The bundle is then laid on the table, and a considerable length of the stem is cut off with one blow of a knife. The bundles are then put aside with their roots in water until they are required for use.

The process of transplanting is done by taking three to five of the decapitated rice plants in the hand and plunging them through the water into the soft mud beneath. (Hence the word "Dam" meaning "dive"). The planting distance varies from 20-40 cm.; the greater distance is exceeded in parts of the Peninsular of Siam and other places where the soil is particularly rich.

The only attention now required is occasional weeding and irrigation in times of low rainfall. If the water in the fields shows signs of stagnation it should be run off and replaced, but this practice is seldom followed.

In the Seven Inner Circles planting begins in May and continues to October; in the North and East it begins in June and continues till October, while in Southern Siam it extends from July to December. Harvesting takes place in the first named part of the country from September to January, in the second from November to February, and in the third from January to May. Harvesting is done with a sickle applied low down on the stems of the plant, except in the South where the Malay habit of cutting each ear off separately is followed.

In the Central Plain a farmer will plant a certain area with Kao Bao or Kao Klang Pi, usually broadcasted, then the main crop of Kao Nak, generally transplanted, and finally Kao Bao again as long as the weather is propitious. He never gets more than one crop annually off the same field. However, in Bang Buo Tong district of Nandaburi there is an enlightened cultivator who is planting his fields with Kao Nak after taking from them a crop of Kao Bao. It remains to be seen what the effect of this will be on the soil, but it is certain that this continuous cropping will not be possible without treatment of the soil with lime and fertilisers.

The rice miller divides his paddy thus:

Kao Na Suan (Garden Rice) the best quality, a long thin grain full of fat, strong and well matured, and with a thin husk—giving a small percentage of broken rice. It may be a mixture of all three groups recognised by the cultivator.

Kao Na Muang (Field Rice) is the lowest quality. The grain is short and broad, wanting in fat, and inclined to be brittle. The husk is coarse and thick. This is derived mostly from Kao Nak broadcasted

upon lands subject to heavy floods. The typical Na Muang is derived from the floating rice and is reaped from boats. A considerable portion of the husked grain is red in colour.

Kao Sam Ruang (Three Eared Rice) is rather superior in quality to *Kao Na Muang*. It contains a greater proportion of long grain and fewer red kernels always derived from broadcasted paddy.

Kao Bao (Light Rice) is better in quality than *Sam Ruang*.

Kao Nio (Glutinous Rice) consisting of the superfine varieties of glutinous rice grown in small quantities in various districts of the Inner Circles and its price is usually on a par with the best *Na Suan* rice.

Area under Rice Cultivation in Siam.

Year		Acres		Tons
1921-22	...	6,489,600	...	4,198,658
1922-23	...	6,818,200	...	4,306,015
1923-24	...	6,716,500	...	4,364,211
1924-25	...	6,942,400	...	4,902,354
1925-26	...	6,716,500	...	4,159,824
1926-27	...	7,236,712	...	5,184,560
1927-28	...	7,319,376	...	4,527,873
1928-29	...	7,123,828	...	3,851,354
1929-30	...	7,589,660	...	3,842,891

Exports of Rice from Siam.

(Prepared by the Adviser, Ministry of Commerce and Communications, Siam)

Year		Quantity in piculs (= 133½ lbs.)		Value in Bahts (= 1s. 10d.)
1915-16	...	18,785,985	...	87,702,290
1916-17	...	19,784,592	...	99,965,372
1917-18	...	18,745,144	...	97,861,658
1918-19	...	14,201,434	...	132,096,385
1919-20	...	7,409,453	...	123,082,698
1920-21	...	4,660,487	...	28,975,860
1921-22	...	21,000,584	...	138,231,324
1922-23	...	21,424,556	...	128,210,665
1923-24	...	22,249,294	...	143,835,554
1924-25	...	19,389,040	...	139,627,629
1925-26	...	22,929,114	...	167,409,359
1926-27	...	21,799,541	...	165,226,234
1927-28	...	28,670,654	...	201,156,349
1928-29	...	24,667,809	...	175,123,781
1929-30	...	18,860,087	...	139,087,390
1930-31	...	13,241,984	...	87,381,393

Yield of Paddy per Acre.

According to the statistics the average yield of paddy over the whole Kingdom ranges from 1330 to 1660 lbs. per acre, these estimates being based on the total crop harvested and the total area under cultivation. The highest yields recorded without the use of fertilisers are:

- (a) 3,562 lbs. per acre in some fields near Bangkok, the variety sown being known as Kao Samue.
- (b) 2,900 lbs. per acre in a district in the province of Nakor Chaisri, the variety sown being called Kao Lukon.

The yield of the same paddy varies considerably in different districts and in some swampy areas adjacent fields show very big divergencies. These are partly due to variation in the depth of water, dissimilar aeration of the water, and the proportion of saline constituents of the soil. The life periods of the various classes of paddy vary from 75-210 days. As a general rule, the other circumstances being equal, the longer-lived variety gives the higher yield.

POULTRY NOTES.

A SUPPLY of clean cool water is just as essential for fowls as feed. Keeping this item regulated is not an easy matter.

Many designs for water tins for keeping up a continuous supply are on the market, but for ordinary poultry runs I find that these do not work. They are so constructed that one vessel is filled with water and turned into some kind of trough from which the fowls drink. As fast as the water is used up the vessel holding the supply fills up the trough. The simplest of these is made from ordinary unglazed pottery. Home made designs are constructed by using tins. More often than not, the fowls foul these vessels and after a couple days the water is quite dirty.

I favour a simple open vessel which is replenished with water from a watering can twice a day. Ordinary unused tins such as Fresh Herring tins are most unsuitable, as the chickens turn them over and remain without water most of the day.

Any pottery maker will fashion suitable vessels after the style of a short flower pot. The fault about these is that they are likely to topple over. In order to prevent this, they should be set on small concrete blocks about 6×6 and 3 ins. thick. The vessel should not be more than 5 inches high and should be wide enough to allow a number of fowls to drink at the same time.

Quite a useful drinking vessel may be made by cutting five inch lengths off six inch jar pipes. These should then be set into concrete slabs which will then form the bottom of the drinking vessel.

Unused water should be poured away after the vessels have been swilled out and a fresh supply made throughout the run during the morning and afternoon. The drinking vessel should be placed in a cool spot in the run with sufficient clearance round it for the fowls to drink from all points. Every fortnight Epsom salts should be added to the drinking water at the rate of one lb. to four gallons, and every month for one whole day the water supply should be tinged with Permanganate of Potash. Add just enough Permanganate to colour the water a faint pink.

The ideal arrangement is where running water is available, with, of course, long drinking troughs supplied with a continuous flow, but very few fowl yards possess this facility.

A.T.

DISEASES OF RABBITS.

IT is important to know the indications of good health in rabbits so that any occurrence of disease might be easily detected. Any change in appearance or the normal condition of the rabbit should be viewed with suspicion.

The outward appearance of rabbits vary according to the age and breed. Flemish Giants are larger than Chinchillas when fully grown and the coat of a young Chinchilla is different in colour to that of a mature animal.

On observing rabbits they should show alertness and virility if they are healthy; the slightest noise will cause them to come to the alert raising the head and pricking the ears. Eyes are bright and clear, and there is an even movement of the nostrils showing regular respiration.

When a rabbit is taken from the hutch, the conformation of its body should be observed—straight forelegs with hind legs well under the body which should be well nourished, are good signs. There should be no deformities such as swellings and ruptures, while movements of the animal should not be accompanied by any sign of lameness or pain.

By feeling the body, any skin affection will be revealed. The coat should be of even texture with a pleasant feel to the touch. Good texture of the coat is an indication of good health.

Enlargement of the abdomen—"pot belly"—is an indication of either accumulation of gases (indigestion) or enlarged organs—liver or intestines, or coccidiosis. There should be no discharges from the nostrils as this indicate snuffles, while the droppings should be firm and may be either light or dark in colour according to the diet.

Coccidiosis.—Young rabbits are most susceptible to coccidiosis. Adult rabbits are often affected by a chronic form of the disease as the result of having suffered an attack when they were young. An important point is that adult rabbits may have the disease and be apparently in good health. These then become carriers, passing out the egg cysts in their droppings, resulting in affection of younger rabbits. The mortality is high, up to 75%.

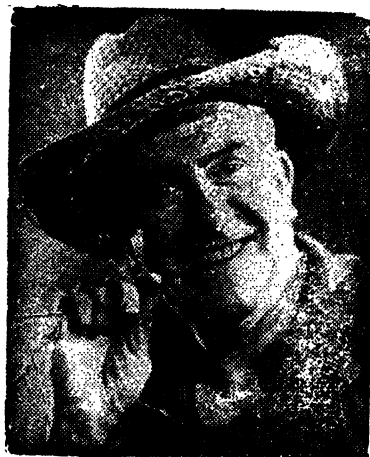
The symptoms are ravenous appetite, quickly followed by loss of appetite when the animals become very meagre. They dribble at the mouth and diarrhoea might result although this is not necessarily an indication of coccidiosis. Adult rabbits are listless, dull, hard to fatten and usually have discharges from the eyes and nostrils.

Treatment of the disease especially in young rabbits is of no value although breeders have claimed good results from the use of crude catechu powdered and mixed with drinking water at the rate of 15 grains to a gallon. The disease however, is preventable, if certain fundamental rules in keeping rabbits are observed. They must not be overcrowded; all hutches to be used for young rabbits should be cleaned, scraped, scrubbed and disinfected. Young rabbits should be separated from older rabbits as soon as possible to prevent carriers infecting them.

After an outbreak of coccidiosis, all droppings and straw should be burned and young unaffected rabbits in the batch destroyed.

The use of a special hutch with wire flooring by means of which droppings pass through the wire is a simple and successful means of controlling the disease. The manure should be removed regularly and the surroundings kept perfectly clean.

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Tuberculosis.—Rabbits are often affected with tuberculosis. They are infected through eating food which has come in contact with tubercle bacillus in the droppings. The disease rarely affects young rabbits since tuberculosis does die before kindling.

All animals suspected of having tuberculosis should be destroyed immediately.

Snuffles.—This is also known as nasal catarrh. It is very contagious and will spread rapidly under favourable conditions. It is an affection of the breathing passages and is caused by at least two organisms which Veterinarians have succeeded in separating from the discharges. The animals are infected by contagion from other rabbits when they sneeze, or by eating materials which have been tampered with by infected animals. The general symptoms are weakness, loss of appetite and high temperature and in later stages the animals become very emaciated. The nostril discharges at first thin and watery, then becomes thicker running down the sides of the mouth and nose dampening the breasts and forepaws.

The disease may disappear, but this occurs only in mild cases, more acute cases lasting for several weeks. In very acute cases death results in about five days. The incubation period of the disease is about 14 days.

As in most of these diseases, preventative measures are best. Complete isolation of the infected stock for at least a fortnight should be undertaken. The utensils and hutches should undergo the usual disinfection, and every care should be exercised to prevent the person looking after the rabbits from spreading the disease from the sick to the healthy animals.

A.T.

(To be continued.)

MARKETING NOTES.

Quotations for local produce are as follows:—

Annatto	... Well cured, prime, red seed	... 13/- per 100 lb.
Coffee	... Good Ordinary	... 28/- „ „
	... Fine Ordinary	... 30/- „ „
	... Manchester—B	... 30/- „ „
	... Manchester—A	... 32/- „ „
Cocoa	... Ordinary	... 17/6 „ „
	... Estates Fertd.	... 17/6 „ „
Honey	... Water White	... 2/9 per gall.
	... Pale Amber	... 2/3 „ „
	... Light Amber	... 2/- „ „
	... Dark Amber	... 1/9 „ „
Kolanuts	... Well cured, sound quality	12/- per 100 lb.
Lime Juice	... Good, fresh, green, top-pulp	... 1/- per gall.
Orange Oil	... Sound Quality—Sweet and Bitter	... 4/3d. per lb.
Sarsaparilla	... Well cured, red roots	... 35/- per 100 lb.
Wax	... Pure clear quality	... 10d. per lb.
Goatskins	... Well cured, sound quality, free from holes	... 1/- per lb.

SALE OF FARMERS' CANE.

UNREGISTERED cane growers try from time to time to sell their canes to Sugar Estates. Due to the quota and license arrangements, estates are not free to buy growers' canes purely on offer. The following letter from the Sugar Manufacturers' Association sets out the position.

Ed.

The Letter.

17th March, 1939.

WE are instructed by our Board of Directors to bring to your attention the fact that Sugar manufacturers are being continually approached by small holders and other agriculturists with the request that such manufacturers should buy canes from them this crop or in the future. We refer, of course, to persons who are not already registered as Cane Farmers under Law No. 43 of 1937; a large number of such applicants being cultivators whose Bananas have been so severely attacked by Panama Disease and/or Leaf Spot that they are now, or shortly will be, unable to continue growing Bananas on their lands.

We are also aware through our representative on the Sugar Control Board that similar applications are continually being made to that Board.

While manufacturers as a whole would be glad to receive well-grown and mature canes of the right varieties at their factories from cultivators whose lands are within reasonable distance thereto, you will of course recognize that unless Jamaica obtains an increase in the Export Quota allotted as part of the British Colonial Global Quota provided for under the International Sugar Agreement, they are not able to assist the cultivators in question by taking their canes.

This matter was discussed at a meeting of the Board of Directors held on the 15th inst., and we were instructed to write to you, pointing out the position which the manufacturers and the cultivators are faced with, and the impossibility of coping with it, while the Export Quota allotted to Jamaica remains what it is this year, viz., 82,400 tons.

We are also to point out that the position will be correspondingly worse both for the Factories and for the Registered Cane Farmers if the Quota for 1939/40 and subsequent years were to be reduced. Any reduction of course would not only make it similarly impossible to assist Banana growers who wish to turn over to canes, but would also very seriously affect Cane Farmers who are at present registered and licensed.

AUTHORISED PERSONS.

Return of arrests during the quarter ended 31st March, 1939.

Portland	...	...	...	3
St. Thomas	...	...	...	5
St. Mary	...	...	...	22
St. Ann	...	...	...	2
Trelawny	...	...	...	1
St. James	...	...	...	6
Hanover	...	...	...	1
Westmoreland	...	...	...	1
Manchester	...	...	...	6
Clarendon	...	...	...	5
St. Catherine	...	...	...	8

CLARENDON JUVENILE BRANCHES.

There was a mass meeting of the Juvenile Branches of Clarendon in the Chapelton schoolroom on Friday, 17th March, beginning at 11 a.m.

Of the twenty branches registered under the jurisdiction of the Clarendon Branches Associated, fourteen were represented at this meeting by 250 children.

The meeting was opened with prayer by Rev. T. E. Hughes, and was presided over by Mr. H. G. Dunkley, President of the Clarendon Branches Associated.

Among those present were, Hon. G. A. Jones, Director of Agriculture; Mr. Arthur Thelwell, Secretary J.A.S.; Mr. P. St. L. Bacquie, Supervisor; Messrs. A. L. Virtue, M. N. Thompson, J. A. Graham, Instructors; Mr. T. S. Robinson, Treasurer C.B.A.; the teachers of the Juvenile Branches and Mr. W. A. James, Secretary C.B.A., and general organizer. Apologies for absence were read from the Hon. Director of Education, Messrs. O. P. Martin, R. W. Speld, and A. P. Hanson.

Mrs. Allwood spoke to the children on the Animal Kingdom, with special reference to the care, treatment and economic value of poultry and goats.

The Hon. Director of Agriculture expressed his pleasure in seeing the children. He pointed out the place of children in the world to-day, and encouraged them to make the best use of their opportunities.

Mr. Thelwell played the role of Father Christmas and presented each Juvenile Branch with a packet containing seeds, fertilizer, Spray, a Time-table and Book on Jamaica.

The Juveniles played their part too. Members of the Red Hills Branch rendered selections from their Percussion Band. A pupil of Rock River Branch recited, and members of Mount Airey and Richmond Park Branches rendered solos.

Mr. Thelwell assisted by Messrs. Virtue and Thompson, gave a demonstration on the making of a seed-box and the sowing of seeds.

Through the kindness of the Grinan Estates, Messrs. Sharp Bros., Mrs. Allwood, Mrs. McWhinnie, Miss Harvey, Mr. Tom Abrahams, and Mr. Lopez, the children were entertained to a sumptuous lunch which they thoroughly enjoyed.

The meeting decided that the Juvenile Branches form an association to be known as the Clarendon Juvenile Branches Associated, for the purpose of enhancing Juvenile Agricultural interests.

Arrangements are being made for a Clarendon Juvenile Exhibition to be held during 1940, and a prize list was presented to each branch present.

A most enjoyable meeting terminated with the singing of the National Anthem.

NONSUCH JUVENILE EXHIBITION AND SHOW.

The Third Annual Juvenile Agricultural Exhibition and Show in connection with the Nonsuch School, Portland, was held on Thursday, March 23, and proved a success.

The exhibits, which included Oils, Meals, Starches, Preserves, Livestock, Ground Provisions, Needlework, Handicraft, and Laundry Work, were judged by several prominent persons. Competition in all classes was very keen.

A pleasing feature was the attractive manner in which the booths and exhibits were arranged.

At 2 p.m. Mr. T. A. Gray, J.P., opened the Show. An interesting programme was carried through. The Juveniles acquitted themselves splendidly. Rev. T. J. Lloyd, B.A., presided, and appropriate speeches were delivered by Miss E. Gideon, Messrs. O. P. Martin, E. B. Rodgers, F. A. Foster, G. R. Graham, A. T. Wilmot, and Rev. W. Thompson.

Mrs. R. H. McLaughlin, wife of the R.M. for the parish, distributed the prizes. Encouraging messages were read from Messrs. A. J. Newman, M.C., M.A., and J. J. Mills.

The Headmaster, in the Annual Report, referred to their agricultural activities as one of the brightest features of the school's work. It is interesting to see the scientific and methodical way in which the Juveniles cultivate their plots. The help given by Instructor G. R. Graham in this phase of the school's work is commendable, and Juveniles, Parents and Teachers are deeply grateful to him.

The function was largely attended.

BRANCH NOTES.

Stewarton, Mocho P.O.—Meeting held 7.2.39. Present: Mr. Theo. Gottshalk, 2nd Vice-President; Miss B. Harris, Mr. G. S. Harris, 34 other members, the Secretary and many visitors. The meeting was called to order by the 2nd Vice-President, Mr. Gottshalk. Correspondence: A favourable reply from the Clarendon

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Parochial Board through the C.B.A. re the Branch's resolution—employment of labourers on the parochial road, was read. Members accepted the reply heartily. A report from the Half-Yearly General Meeting was presented by Mr. O. H. Lawrence, to whom thanks were given. Mr. Harris gave a stirring address, in which he urged the members to take deeper interest in their agricultural pursuits. He encouraged the growing of Irish potatoes and vegetables. A managing committee was deputed to carry out the work in the Nursery, the chairman of which was asked to give a monthly report. Domestic matters were arranged, and a social followed. The meeting was terminated with the singing of "the King."

(Miss) I. I. O'REILLY,
Secretary.

MANCHESTER: Auchtembeddie.—Meeting held 17.2.39. Mr. I. N. Taylor, 1st Vice-President, presided. Present: Miss E. Foote, Asst. Secretary; Miss I. M. Black, Instructor Kelly and Mr. E. White, Authorized Person. The Chairman exhorted members to show interest in the society. Mr. Kelly addressed the meeting on Leaf Spot disease of bananas. A report of the visit of Mr. Sutherland and Mr. Ward to Upper Trelawny was given. The marketing of locally-grown products was dealt with. Valuable hints were given by the Instructor. A grindstone for the use of the society was discussed. The meeting ended with "The King."

J. N. FRASER,
Secretary.

Porus, Porus P.O.—Meeting held 6.3.39. Mr. T. N. Davis, second Vice-President, presided. It was decided that members should be reminded of the Annual Meeting. It was agreed that the Secretary be presented with a Purse and an address in appreciation of his services. Correspondence was read and dealt with. The meeting terminated.

C. ROWLAND, Secretary.

PORTLAND: Bangor Ridge, Bangor Ridge P.O.—Meeting held 2.3.39. Present: Mr. L. E. Dillon, President; Instructor Wilmot, 10 members, 27 visitors and the Secretary. The following matters were dealt with: (a) Picnic to be held on Easter Monday in order to raise funds for the branch. This was postponed. (b) Authorized Persons report. It was pointed out that there is need for more Authorized Persons in the district. Mr. Wilmot delivered a very practical address on the budding of citrus, garden eggs and mangoes. He was heartily thanked for his address. An invitation from the Nonsuch Branch to attend a Show on the 23rd March was noted. Notice of Annual Meeting to be held on the 6th April was also noted. It was decided that each member should bring another member in order to increase the membership of the branch. The National Anthem terminated the meeting.

GEORGE A. BARNES,
Secretary.

Maidstone, Bourbon, St. Margaret's Bay P.O.—Meeting held 8.2.39. Present: Messrs. N. V. Thompson, M.P.B., President; G. R. Graham, Instructor; Jasper A. Thompson, 2nd Vice-President; the Secretary, 1 visitor, and 4 Juveniles. The following matters were discussed: (a) Grindstone. The Secretary was instructed to make arrangements to purchase a grindstone. (b) Vegetable Competition. The President reported that almost all the seeds had failed to germinate. (c) Rooster. A letter from the Director of Agriculture showed that a White Leghorn rooster was not available at present. The Instructor gave an address. He was heartily thanked. An outing to Grove Place was suggested by the Secretary. It was decided to write to the Parochial Board asking for improvement to the Darley Maidstone Road. The water supply of the district of Maidstone was briefly discussed. Roll Call showed 12 members present. The singing of the National Anthem terminated the meeting.

I. E. SOMERS,
Secretary.

St. George, Buff Bay P.O.—Meeting held 18th February. Present: H. I. Williams, President; and 12 other members. Rev. W. T. Graham reported he visited with Messrs. S. A. Morris and A. T. Wilmot, the plot given by Mr. J. H. Steadman for demonstration. It was ideally situated and should be taken up at once. Arrangements were made to do this. The Secretary of the Branch was instructed to inform the Secretary of the Parent Society. There was a profitable discussion on sowing of seeds, led by Mr. Morris. It was decided to ask the Secretary of the Parent Society to help the Branch by sending an officer to advise on Tobacco Cultivation. Many members were interested. The proposed Show by the Central Portland Branches to be held in 1940, was discussed and members promised to co-operate.

B. F. McCALLA,
Secretary.

ST. ANN : Brown's Town, Brown's Town P.O.—Meeting held 2nd March. Present : Instructor Robotham, Mr. G. T. Brown, Treasurer; 5 other members and the Secretary. Correspondence : Letter from the President, apologizing for his absence, was read. The appointment of an Asst. Secretary was deferred for the next meeting. The Instructor spoke on the "White Yam Industry," in the course of which he gave very useful information on the planting of yams. This was followed by a lively discussion on the same subject. A resolution, requesting the St. Ann Parochial Board to erect a suitable shed for the protection and shelter of vendors of ground provisions in the Market Place, Brown's Town, was passed. The meeting adjourned.

D. MILLER,
Secretary.

Sturge Town, Sturge Town P.O.—Meeting held 27.1.39. Present : Instructor Robotham and 18 members. The matter was discussed by the house re a present to be given to Mr. C. R. Moss, ex-President, for his good work. Mr. Robotham gave a very instructive lecture on the growing of Irish potatoes and cabbages. The President, Mr. L. A. S. Dawes, thanked the Instructor on behalf of the house. Authorized Persons reported "all correct." The meeting terminated by the singing of the National Anthem.

L. R. MOSS,
Secretary.

Thicketts, Keith P.O.—Meeting held 17th February. Present : Mr. L. C. Morris, 1st Vice-President; the Secretary, and 20 members. The purchase of the Home Castle property for Land Settlement Scheme was discussed. It was agreed that a resolution be sent to the Board of Management re this matter. The Secretary was advised to invite Mr. C. O. Cover to the next meeting. One A.P. present reported "all correct." The meeting terminated with the singing of the National Anthem.

T. A. LINTON,
Secretary.

ST. CATHERINE : Bellas Gate, Bellas Gate P.O.—Meeting held 13.3.39. Present : Rev. Minott, Instructor Byles, Teacher Spence, Mr. C. L. Stuart, Asst. Secretary J.A.S.; Mr. G. E. Markland, President; Messrs. M. Golding, 1st Vice-President; D. L. Shaw, 2nd Vice-President; the Secretary, many members and visitors. The President spoke of the possibility of collective marketing in the district. Final arrangements were made for the procuring and care of a ram for the Branch. The Instructor gave hints on land settlement, leaf spot, marketing of crops, and gave an instructive address on the "Care of Chickens." Teacher Spence and Rev. Minott gave addresses. Both speakers emphasized the value of co-operation and encouraged members to increase the membership of the Branch. Members were reminded of the annual meeting. Authorized Persons were reminded that they should attend meetings regularly. An instructive and interesting meeting was ended by the singing of the National Anthem.

(Miss) G. M. FLETCHER,
Secretary.

Coolshade, Linstead P.O.—Meeting held 13.2.39. Present : 3 officers and 12 members. The need for a Headman for the district was pointed out. The meeting was brought to a close by the singing of the National Anthem.

ARTHUR C. BARNES,
Secretary.

Morris Hall, Harker's Hall P.O.—Meeting held 3.3.39. Present : Instructor Byles, J. L. Edwards, Chairman; R. Beckford, 1st Vice-President; F. S. Rhooms, 2nd Vice-President; 30 members and a number of visitors. Mr. Byles suggested that meetings be held on the second Wednesday in each month as that would be more convenient to members. He gave an instructive address on the Growing and Marketing of products. He dealt with (a) The keeping of Livestock : (b) Suitable crops to be grown : (c) How to trench hilly lands to avoid denudation. In conveying thanks to the Instructor, several members expressed satisfaction at the results achieved by carrying out his advice. The meeting terminated with "the King."

T. E. LAWRENCE,
Secretary.

Time and Patience, Linstead P.O.—Inaugural meeting held 14.2.39. Present : Mr. T. J. Cawley, Instructor Byles, Mr. McDaniel, the President; 2nd and 3rd Vice-Presidents, Secretary, Asst. Secretary, 7 Committee members, 4 other members and many visitors. Mr. Cawley gave a very interesting and instructive address, and touched a few important matters which had been dealt with at the Half-Yearly meeting. After the Installation of officers by Mr. T. J. Cawley, Mr. Byles

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gave a very instructive talk on the rearing of pigs. The Delegate to the Half-Yearly meeting gave a report. The meeting was brought to a close by the singing of the National Anthem.

(Miss) A. M. BOYD,
Secretary.

ST. ELIZABETH: Fyffe's Pen, Fyffe's Pen P.O.—Meeting held 9.2.39. Present: 10 members, including Mr. D. A. Walters, President; Miss McIntyre, Treasurer; and the Secretary. The President who was the Branch's delegate to the Half-Yearly General Meeting, gave his report. The Secretary thanked him on behalf of the members. The President expressed his satisfaction with regard to the stand-pipe at the school gate, but asked that the Board take it further into the premises. The meeting terminated with "The King."

LAWRENCE H. E. REID,
Secretary.

Nightingale Grove, Newmarket P.O.—Meeting held 3.3.39. Present: Mr. A. A. Walker, 1st Vice-President, who presided; 31 members and several visitors, 15 of whom subsequently became members of the Branch. Correspondence was dealt with. Letters were read from the General Secretary re a second visit from Mr. Whitbread; the resolution re Vocational Schools, and Authorized Persons. A letter was read from the Parochial Board re an allowance of £20 for the road from Mocho to Springfield. These matters brought forth interesting discussions and resulted in the Secretary being instructed to write again to the General Secretary and the Marketing Officer pressing the need for Mr. Whitbread's proposed visit. It was decided that the resolution re Vocational School and a covering letter asking that the matter be taken up with Government, should be sent to the M.L.C. for the Parish. The need for a tank at Newmarket was stressed. The visit of the Branch to Bull Savanna was discussed, and Mr. Roxburgh mentioned that members of the Middle Quarters Branch would join. No date was fixed, as the Secretary had not yet heard from the authorities. Re White Yam competition, Mr. Lewis explained that he had arranged for an extra supply of heads if the necessity arose. It was suggested that the Middle Quarters Branch join in the purchase and use of a boar. The suggestion was adopted. It was stated that the Rain had arrived and was now in Mr. Lewis' care. Arrangements for service could be made with him. Mr. Edgerton Wright addressed the meeting. Mr. E. H. Thomas moved a resolution re the establishment of an Agricultural Loan Bank. The following persons were appointed to form a committee to deal with this matter: Messrs. P. Green, Roxburgh, Lewis, H. Vassel and Thomas. It was suggested that the tank at Woodlands be repaired by the Parochial Board. A committee was appointed to inspect this tank and report. Mention was made of the Road between Westmoreland and St. Elizabeth near the Woodland district. The Secretary was instructed to refer the matter to the Parochial Board. The asphaltting of the Newmarket road was to be taken up with Central Government. Mention was made of the newly-formed Juvenile Branch. It was decided to have a concert to raise funds for the Branch. Messrs. Walker, Lewis, and the Secretary were asked to make the necessary arrangements. The amount of 10/3d. was collected as local fees. The date for the next meeting was fixed for Wednesday, 5th April. The meeting terminated.

(Miss) E. J. DOBSON, Secretary.

Southfield, Southfield P.O.—Meeting held 17.2.39. Foreman Mullings presided. The chief work of the meeting was to appoint additional Selectors of Tomato and to select more buying centres. The meeting appointed the following as additional Selectors: Miss Ivy Bent, Miss Amy Smith, Miss Vida Josephs, Miss Birdie Miller, Messrs. Winston Vassal and Winston Miller. The following buying centres have been selected: Queensbury, Lower Southfield, Dyer's Gate, Upper Southfield, and the Oasis Market. The Bug Sprays were given to reliable growers. The Chairman said he had been pleased to see some fine plots of Irish potatoes. The Secretary informed the meeting that 24 persons had started the Irish Potato Industry under the direction of the Low Temperature Station. The meeting rose at the singing of the National Anthem.

J. J. MILLER,
Secretary.

ST. JAMES: Bickersteth, Montpelier P.O.—Meeting held March 2, 1939. Present: Mr. H. A. Denton, President; Mr. N. Campbell, Vice-President; Instructor Hastings, Foreman E. C. Valentine, 23 members and a large number of visitors. A discussion took place on the Agricultural conditions existing in the district. The Instructor told what had been done re Leaf Spot Disease. He dealt with the possibilities of minor industries such as corn and cassava, and informed the gathering that a Depot of the Marketing Division may be erected at Cambridge.

A Resolution re an Agricultural Show was adopted. The Secretary notified the Branch of the formation of a Juvenile Branch earlier that evening. Notice of the Annual Meeting to be held in April was given. The singing of "the King" closed an interesting meeting.

H. B. M. CRAWFORD,
Secretary.

Catadupa, Catadupa P.O.—Meeting held 11.2.39. Present: 17 members, the officers of the Branch, and several visitors, three of whom became members. Land Settlement and increase of membership of the Branch were discussed. It was decided to send a resolution re the water supply of the district to the Parochial Board. A committee was formed to make arrangements for a programme for the next meeting. A very enjoyable meeting was brought to a close by the singing of the National Anthem.

J. GORDON EXCELL,
Secretary.

Salt Spring, Montego Bay P.O.—Meeting held 14.2.39. Present: G. Anglin, (President); C. Thompson, (Secretary); and many other members. Correspondence was dealt with. Land Settlement was discussed. The Secretary was instructed to call the attention of the Parochial Board to the unsatisfactory state of the water supply for the district. The meeting then adjourned.

C. A. THOMPSON,
Secretary.

ST. MARY: Tryall Hill, Long Road P.O.—Meeting held 20.2.39. Present: 32 members, and Mr. E. Henderson, 2nd Vice-President, who presided. The Acting Secretary informed the house that no report had been received from the Clerk of the Courts for the parish in reply to a letter sent re A.P. Bruce's claim. A letter from the Attorney of Fort George was read. A letter from the Parochial Board was read, in which the Board acknowledged the receipt of application from Mrs. R. Somers through the branch for a branch pipe, stating that this matter will be considered when the water supply has been established. Each member was taxed 6d to replace the amount taken from the Treasury for the joint function made with the Long Road Branch, for the opening of the Long Road Post Office. Mr. J. S. Forrester gave notice of a motion to be put forward at the next meeting. The singing of "the King" brought the meeting to a close.

N. HEG. HENRY,
Acting Secretary.

Wallingford, Guy's Hill P.O.—Meeting held 20.2.39. Present: 5 members, 1 visitor, the President and the Secretary. It was decided that the Parent Society be asked the kinds of crops that could be planted on diseased areas. The National Anthem terminated the meeting.

L. A. HENRY,
Secretary.

Hagley Gap, Hagley Gap P.O.—Meeting held February 24, 1939. Present: Instructor McLaren, 12 members, and Mr. Charles Headlam, 2nd Vice-President. A discussion arose re visit of the D.M.O. to Penlyne Castle for vaccination. Members agreed that a letter should be sent to the Director of Medical Services. It was decided to write the M.L.C. for the Parish re the Antully Mahogany Vale Road. Mr. McLaren gave a very encouraging address. The Authorized Person reported "all correct." The meeting stood adjourned with the singing of the National Anthem.

(Miss) B. E. SINGLETON,
Secretary.

Pear Tree River, Port Morant P.O.—Meeting held 6.2.39. A.P. Robert Hauldridge reported 1 arrest. There were discussions re signboards and Land Settlement. A letter from the Hon. Member for the Parish was read stating that he would be present at the special meeting of the Branch on Friday, 24th inst. The need for a Dispensary was pointed out. The Instructor had obtained the land for a Demonstration Plot.

V. R. McLEAN,
Secretary.

Whitehall, Seaforth P.O.—Meeting held 27.2.39. Present: Mr. Leslie L. Donaldson, 1st Vice-President; 8 members, and the Secretary. The Land Settlement Scheme was discussed. The death of Mr. L. A. Barrett, a very active member of the branch, was deplored. A function to be held in August in aid of the Branch was proposed by Mr. W. Dunn. The meeting was terminated by the singing of the National Anthem.

E. U. EDMONDSON,
Secretary.

Spring Garden, Rock Spring: Albert Town P.O.—Meeting held 9.2.39. Present: Messrs. F. W. Kelly, Instructor; Llewellyn Coye, 1st Vice-President, who presided; O. Hastings, J. and A. Codling, V. Coy, Miss J. Codling, many other members and visitors. Several matters were discussed. Among them were: (i) A Post Office for the vicinity; (ii) Improvement of the Kelton's Road; (iii) A bridge on the Parochial Road leading to Durham. The Chairman asked for an increase in membership. Two new members paid their fees. The Instructor gave a short and very interesting address on Leaf Spot, for which he was heartily thanked. The A.P. reported "all correct." Minor matters were dealt with and an enjoyable meeting terminated with the singing of the National Anthem.

L. C. Coy,
Secretary.

Ulster Spring, Ulster Spring P.O.—Meeting held 13.3.39. Present: Instructor Kelly, 12 members, Mr. G. M. Sylvester, President; and a great number of visitors. Correspondence was read. Authorized Persons present reported "all correct." Mr. O. A. Harding introduced two resolutions re (i) Flooring of school; (ii) Infant school for the district. A committee was formed to reconstruct the first resolution. The other was deferred. The meeting adjourned after the National Anthem had been sung.

(Mrs) I. C. Williams,
Secretary.

Sheffield, Sheffield P.O.—Meeting held 6th March, 1939. Present: Mr. R. S. Robinson, President; Hon. Maurice H. Segre, M.L.C. and President of the Westmoreland Branches Associated; Mr. Fred Forrest, Mr. F. H. Touzalin, 1st Vice-President; Mr. Nathaniel Laurence, 2nd Vice-President; 12 other members, several visitors, and the Secretary. The President welcomed the Hon. Member. Correspondence was read. An address was read to the Hon. Member, who spoke on matters pertaining to the welfare of the district, such as water supply, Land Settlement Scheme, cultivation of rice, medical aid, etc. A song was sung by the President. Mr. Forrest gave an address on Agricultural matters. He was thanked. Mr. Touzalin spoke on the cultivation of cassava. The meeting was an enjoyable one, and was closed with the singing of the National Anthem.

SAML. M. HALL,
Secretary.

OTHER REPORTS RECEIVED.

Branch and Secretary.	Date of Meeting.	Attendance.	Business.
Clarendon— Rock (G. S. F. Manning)	23.2.39	67	Subsidy for ram. Water supply.
Mt. Airey (Miss M. E. Dawkins)	14.2.39	Over 22	Cabbage Competition. Address by Instructor Virtue. Report of delegate to Half-Yearly General Meeting. Road. Report of A. P.
Manchester— Mizpah (U. C. Wolfe)	13.3.39	26	Demonstration Plot. Correspondence. Potatoes. Fertilisers. Spray. Report of Treasurer. Show.
Portland— Bybrook (Miss I. M. Facey)	10.3.39	Over 6	Correspondence. Annual meeting. Local show.
Mahoe (J. O. Grant)	16.2.39	..	Land Settlement. Correspondence. Fertilisers. Road. Show. Reports of Authorized Persons.
Rock Hall (E. V. Metcalfe-Vaughan)	14.2.39	25	Correspondence. Report of A. P. Road.
St. Catherine— Time & Patience (Miss A. M. Boyd)	14.3.39	13	Correspondence. Field Day. Report of delegate to Half-Yearly General Meeting.

OTHER REPORTS RECEIVED, contd.

Branch and Secretary.	Date of Meeting.	Attendance.	Business.
<i>St. James—</i> Catadupa (J. Gordon Excell)	11.3.39	..	Land Settlement. Membership drive.
<i>St. Mary—</i> Highgate (C. L. Williams)	8.3.39	36	Land Settlement. Address by Instructor Jones.
Baxter's Mtn. (R. J. Lawson Ricketts)	21.2.39	..	Reports of Authorized Persons. Leaf Spot. Bridge. Roll call.
Jackson (Miss F. M. Marston)	23.2.39	..	Address by Instructor Coke. Routine matters.
Mt. Regale (T. H. Hannam)	3.3.39	..	Road. Presentation to Mr. T. W. Mattock, Treasurer of the Branch. Minor matters.
Woodside (H. S. Brodber)	8.2.39	Over 29	Address by Mr. G. C. Chamberlain. Road. Report of A.P.
<i>St. Thomas—</i> Golden Grove (Dorrell Reid)	15.2.39	16	Land Settlement Scheme. Demonstration Plot. Market shed. Water supply.
Pear Tree River (V. Ralph McLean)	6.12.38	8	School. Correspondence. Roll call.
Thornton (N. A. Patterson)	14.2.39	20	Protection of water supply. Land Settlement.
<i>Trelawny—</i> Spring Garden— Rock Spring (L. C. Coy)	9.3.39	Over 11	Road. Post office. Address by Instructor Kelly on Coffee. Report of A.P.
Ulster Spring (Miss I. C. Williams)	13.2.39	Over 10	Reports of Authorized Persons. Address by Instructor Kelly. Routine matters.
<i>Westmoreland—</i> Porter's Mtn. (D. F. Bowen)	20.2.39	Over 27	Address by Instructor Hastings. Bell. Debate. Reports of Authorized Persons. Water supply. Roll Call.

JUVENILE BRANCHES.

ST. CATHERINE: York Street.—Meeting held 23.3.39. Present: 45 juveniles, 8 honorary members and Teacher C. S. Brown. Mr. S. G. Johnson presided. The Secretary read the report on the recent Juvenile Agricultural Show and Exhibition. This was adopted. Election of officers: Ruth Williams, President; Linette Taffee, Vice-President; Samuel Johnson, Secretary; Clifton Harrison, Asst. Secretary; Catherine Facey, Treasurer. Teacher Brown urged the juveniles to continue their interest in the livestock and agricultural projects which had been started. After the roll call, the meeting adjourned to 23rd March.

SAMUEL JOHNSON,
Secretary.

ST. JAMES: Bickersteth.—Meeting held 2.3.39. Instructor Hastings spoke about Juvenile Branches. Officers elected: Jocelyn Taylor, President; Audley Denton, 1st Vice-President; Clarence Stanhope, 2nd Vice-President; Louise Barrett, Secretary; Ealyn Lawrence, Treasurer; H. B. Crawford, Hon. President. Executive Committee: Miss E. Barrett, Miss K. Hall and other officers of the Branch. The National Anthem was sung, and the meeting stood adjourned.

LOUISE BARRETT,
Secretary.

Department of Science and Agriculture.

GOVERNMENT LABORATORY.

*ARSENITE OF SODA.

Supplied in original unopened drums only.

100 lb. Drum	£1 10 0
50 lb. "	0 15 2
25 lb. "	0 7 7

The cost inclusive of drum and crates.

Drums and crates are not returnable.

PARANAPH 3d. per lb.

CARBON BI-SULPHIDE, for use in the fumigation of corn, etc.,
attacked by weevils and for the destruction of ants and
grubs in the soils as well as for treatment of clothes and
books suffering from insect attacks 9d. per lb.

Also to be had in 56 lb. Drum at £2 2 0

N.B.—All orders for Carbon Bi-sulphide must include the
cost of the iron drum for storing. When drum is re-
turned in good condition, a refund of cost will be made.

Iron drums for storing (to hold 5 lbs.) 3/6 each.
" " " (to hold 10 lbs.) 5/4 each.

THYMOL POWDERS, for worms and bots in horses and mule 4d. per pkt.

RAT POISON (supplied to Licensed Druggists only). In bulk
including cost of container 7d. per lb.

Put up in strong Manilla envelopes holding one ounce
each 9d. per 16 pkt.

N.B.—Orders for less than 16 packets not accepted. All
applications must be accompanied by an agreement to
retail the poison to the public at a price not exceeding
one penny per packet, one penny per ounce or nine pence
per lb.

CYANOGENAS. 1 lb. Tin "A" dust.....	1/10 per tin.
5 lb. Tin "A" dust.....	9/- per tin.
5 lb. Tin "G" fumigant.....	7/4 per tin
25 lb. Tin "A" dust.....	£1 9 2 per tin.
25 lb. Tin Citrus dust.....	£1 9 2 per tin.

*TESTING OUTFITS, COMPLETE, including cost of containers
and mailing case 7/2 each

*STANDARD IODINE SOLUTION, in 9 oz. bottles (including
cost of bottle, 6d., and mailing case 2/-) 3/- each.

*STARCH SOLUTION, in 6 oz. bottles (including cost of bottle
4d. and mailing case 8d.) 1/3 each.

*SODIUM BICARBONATE, in 6 oz. bottles (including cost of
bottle 4d., and mailing case 8d.) 1/3 each.

*25 C.C. CYLINDERS (for dip testing) 2/2 each.

*MIXING BOTTLES (" " ") 4d. each.

FLY KILLER for the extermination of flies, mosquitoes, etc. 5/- per gal.

N.B.—Purchasers of Fly Killer must provide their own containers

Credit given for all containers returned in good order, if originally charged for
Supplied by Rail or Post, carriage free. Freight chargeable on supplies by Coastal
Boat.

All orders should be addressed to "The Director of Agriculture, Kingston P.O.
and must be *fully prepaid*.

State full address, nearest railway station or shipping port.

*Supplied to owners of Registered Dipping Tanks only.

When in doubt - - - - -
- - - *ASK THOSE WHO KNOW!*

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THE JOURNAL

OF THE

Jamaica Agricultural Society.

The more people do the more they can do; he who does nothing renders himself incapable of doing anything; while we are executing one work we are preparing ourselves for undertaking another.

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JUNE & JULY, 1939.

Nos. 6 & 7.

BOARD OF MANAGEMENT.

THE regular monthly meeting of the Board of Management of the Jamaica Agricultural Society was held at the offices of the Society 10—12 North Parade, Kingston, on Wednesday, the 3rd May, 1939, at 11.30 a.m. There were present: Hon. Geo. Seymour Seymour, O.B.E., 1st Vice-President, presiding; Rev. W. J. Thompson and U. Theo. McKay, Second and Third Vice-Presidents, respectively; Hon. G. A. Jones, C.M.G., Director of Agriculture (*ex-officio*), Hon. and Rev. J. W. Maxwell, Hons. C. A. Little, A. B. Lowe, C. A. Reid, and M. H. Segre, Messrs. T. J. Cawley, C. O. Cover, H. G. Dunkley, T. P. V. McDaniel, D. D. Phillips and C. L. A. Stuart; Messrs. P. St. L. Bacquie and A. P. Hanson, Supervisors of Instructors and the Secretary, Arthur Thelwell.

Confirmation of Minutes of the Previous Meeting.

The Minutes of the previous meeting having been circulated, they were taken as read.

The motion of the Director of Agriculture that the minutes be confirmed was seconded by Mr. McDaniel.

Mr. Thompson said he would like to know if the procedure in connection with the special meeting held on the 14th April was correct. His recollection was that at the last regular meeting it was decided that a special meeting of the Board should be called to make selections to fill the two vacant positions of Assistant Instructors. He discovered that that meeting was held as a Committee meeting.

The motion for confirmation was put and there being no dissent, the minutes were declared confirmed.

Mr. Thompson then asked if a special meeting of the Board had been held on the 14th April.

Mr. Little suggested that the minutes of the meeting held on the 14th April should be submitted whether it was a special meeting of the Board on the Instructors Committee.

Rev. Mr. Maxwell said Mr. Thompson's contention was correct. At the last meeting of the Board a report from the Instructors Committee recommended that a special meeting should be held on the 14th April. The Board made a decision in respect to this matter and no record of this appeared in the minutes. It was therefore obvious that the Minutes being incomplete could not be confirmed as they stood.

Mr. Little suggested that an amendment should be made.

Hon. Mr. Reid said members had pretermitted their opportunity for amending the minutes which had already been confirmed.

The Chairman ruled that Mr. Thompson was out of order and the point raised by him could not be considered.

Mr. Thompson desired that the discussions on this matter should be accurately recorded. He then moved the suspension of the standing orders to admit consideration of item 8 b. "Report from Committee re Appointment of Assistant Instructors."

This was seconded by Mr. Stuart.

An objection was made to the suspension of the standing orders and on the vote being taken the motion was lost.

Matters arising out of the Minutes.

(a) *Preservation of Trees.* The scheme submitted by Mr. Byles, Agricultural Instructor, for re-afforestation in St. Catherine which the Secretary said was being published in the Journal, was read, also the following letter from the Department of Agriculture. *

No. DD : 454

29th April, 1939.

"With reference to your letter No. 8 dated 17th April, 1939, on the subject of the afforestation scheme for St. Catherine submitted to the Forest Officer by Mr. Clarence Byles, Instructor for the district I am instructed by the Director of Agriculture to inform you that the Forest Officer has reported that owing to the large programme now being undertaken by his division and the limited staff at his disposal, it is regretted that it will not be feasible to undertake any afforestation scheme in St. Catherine at present."

(Sgd.) GEORGE GOODE,
Chief Clerk.

Mr. McKay suggested that instructions should be issued to the Field Officers to extend the Tree Planting activities of the Society.

The Chairman said that although the Department of Agriculture had stated that they did not intend to undertake the scheme, the Board could nevertheless request that a nursery be set up at some suitable central place under the care of the Instructor.

Mr. Cawley moved that the sum of £25 be allocated for establishing nurseries in St. Catherine under Instructor Byles and that steps be taken to get seeds from the Forestry Department.

Mr. McKay seconded the motion on the understanding that the Secretary and Mr. Byles should prepare a scheme of the work to be carried out.

The Secretary stated that the Society sponsored re-afforestation as evidenced in the Tree Planting Day revived in 1938 and the Tree Planting Campaigns in St. Andrew which were conducted for many years by Mr. Hanson when he was an Instructor, and in which in recent years the late Instructor Mr. Henderson had also been associated. These activities had been taken over by the Forestry Department for administration and the Society was asked only to co-operate. Although it was alarming that the work was not progressing as speedily as was desirable, he felt that as the work was distinctly under the regime of the Forestry Department, they should be asked to do it.

Mr. Stuart said that probably if strong pressure could be brought to bear on Government the work would be undertaken especially as they had the funds at their disposal. The Instructors could help with the work as the Forestry Department complained that they lacked staff.

In reply to Mr. McDaniel's query as to whether free supplies of plants were available from the Forestry Division, the Secretary said that the mortality of the plants so supplied was too high for practical purposes and it was necessary that in addition to the nursery at Hope there should be others at convenient centres to afford easy transportation.

Mr. Reid said that expenditure involved in setting out plants as supplied by the Forestry Division was a waste of money, as although the plants were well packed for shipment they were not in Bamboo Pots.

Mr. Little said that since there was a Forestry Division he did not think the Society could justifiably select one parish in which to spend £25 in this direction. That would simply establish a precedent for other sections to ask for similar service which the Society could not afford.

Mr Lowe said that the inauguration of the Division was to take care of just such situations and a case such as the one under discussion was too important to be ignored on account of too big an existing programme.

The Chairman pointed out that if a nursery was started it could be taken care of by the Instructor and when an officer of the Forestry Department could be released the work could be taken to completion by that Department.

Mr. Cawley with the consent of his seconder withdrew his motion in favour of the suggestions made, and the Secretary was directed to convey these suggestions to Government and to impress upon them that the Society was willing to give all the necessary co-operation to advance afforestation in St. Catherine and other sections of the Island.

(b). *Report of Committee re Marketing.* The Chairman said the report had been circulated.

Mr. Phillips moved that the terms of the arrangement between the Marketing Division and Messrs. I. C. Maynier & Co. made on the lines discussed between the First Vice-President, the Secretary and the Marketing Officer as recorded in the report, be circulated to the members of the Board.

This was seconded by Mr. Stuart, who observed that the whole object of the new institution was to afford growers as much benefit as possible and the question of profit to the Society or the Marketing Division should be minimised.

Mr. Cawley said he was unaware that there would be a third party in the deal. He had felt that the supplies would go to the Government Institutions through the Society or the Marketing Division.

The Chairman explained that neither of these Departments had the staff to handle the work entailed and that was why it was necessary to utilise the services of Messrs. Maynier & Co. who already had experience in this work.

Mr. Reid explasized the necessity of producers being given the best possible prices for produce and instanced cases which showed that the new proposals for the disposal of ground provisions and other products had given a flip to cultivations which had been abandoned. He added that it was desirable that the prices to be paid to growers should be published in the Press from time to time so that the producers could be aware of them.

The matter of the price paid for yams in comparison to the prices at which this commodity was supplied to Government as also the observation that whereas yams were purchased by the hundred-weight they were sold by the hundred pounds was discussed.

Mr. McDaniel said his recollections of the decision was that the arrangement with Messrs. Maynier & Co. was a temporary measure and was terminable at one week's notice.

The Secretary stated that the prices fixed were the minimum prices to be paid to growers and the maximum prices which Government

would be asked to pay. The prices to be paid to growers were subject to revision. In regard to yams, no statistics were available as to shrinkage and waste and it was decided that the first month's business in this commodity should be purely experimental, inasmuch that reorganization of prices had already taken place. The terms of the arrangement with Messrs Maynier & Co was intended for circulation to the Board.

The Secretary was directed to collate all the information on these matters to be circulated along with the terms of the arrangement with Messrs Maynier & Co.

It was decided that the matter should be further taken up at the next regular meeting of the Board.

(c) *Report from Coffee Committee.* The minutes of the meeting of the Coffee Committee held on the 8th March, 1939, which had been circulated were read.

Mr Cover observed that the tendency was to force producers to prepare good quality coffee to be sold at the price of a very low grade of product. He suggested that the proceedings of a former Coffee Committee should be placed at the disposal of the present Committee.

The Secretary said that this had already been done and the present Committee had now proposed definite recommendations for action.

Mr McDaniel said it was apparent that the vital point was proper curing if better prices were to be obtained.

It was finally decided on the motion of Mr McKay, seconded by the Chairman that the report be adopted and a copy forwarded to Government.

(d) *Letter from C.S.O. re Personnel of Standing Committee on Agricultural Activities.* This letter which was deferred from the last meeting was read.

Mr Reid's motion that Mr Seymour be elected was seconded by Mr McDaniel.

Mr Phillips' motion that Mr Cawley be elected was seconded by Mr Stuart.

Mr Seymour was elected by ballot which resulted in 11 votes being cast for Mr Seymour and 3 for Mr Cawley.

(e) *Mr Stuart re Committee on Resolutions.* Mr Stuart said that the Board had unwittingly appointed a Committee of the First Vice-President and the Secretary as a Committee to deal with resolutions from Branches. He felt that Agriculturists throughout the Island would not be satisfied with this arrangement but would rather that each resolution should be separately considered by the whole Board. He moved that the original procedure should be reverted to.

This was seconded by Mr Little.

On Mr Maxwell pointing out that according to Bye-Law No 18 of the Board of Management the matter could not be discussed without the consent of two-thirds of the members present, a vote was taken which resulted in six members voting against and four members for renewing the discussion.

The luncheon adjournment was taken.

Resumption.

On the resumption there were present Rev W. J. Thompson, Second Vice-President in the chair, Messrs McKay, McDaniel, Dunkley, Phillips and Stuart, the two Supervisors of Instructors and the Secretary.

During the course of the meeting the Director of Agriculture, Hons. Segré and Reid and Mr. Cover attended.

Statement of Accounts.

Statements for the months of March and April were submitted and the Secretary was directed to send copies of these to members as usual.

Communications.

(a) *Letter from C.S.O. re Estimates.* The Secretary submitted the following memorandum:—

2nd May, 1939.

To The Board of Management :

ESTIMATES.

The total subvention asked for in the Estimates passed by the Board for 1939-40 was £14,041.

2. The total subvention approved by Government is £12,384, which while it is less than the Estimates, is over £1,400 more than the subvention for 1938-39.

3. The main items deleted are :

i. Extra increment to Secretary	...	...	£ 61
ii. Development of Poultry Industry	...	...	300
iii. Holdings Improvement Competition	...	...	250
iv. Promotion of Home Industries	...	...	100
v. Courses for Agricultural Instructors at Trinidad	...	...	150

£800

4. The item for Agricultural Instructors and Field Services was reduced by £800 on account of changes in personnel, i.e., death of Instructor Henderson and resignation of Mr. Shirley, but provision has been made for increments to Instructors and employment of two Assistant Instructors, so that in truth and in fact this item has been increased.

The Estimates provided for the employment of 10 additional Foremen, but only 4 additional Foremen have been approved of.

(Sgd.) ARTHUR THELWELL,
Secretary.

The letter from the C. S. O. was as follows:—

No. 5637/38

24th March, 1939.

"With reference to the correspondence ending with your memorandum of the 8th February, 1939, on the subject of the Estimates of the Jamaica Agricultural Society for 1939-40, I am directed to state that Government has provided a sum of £12,384 in the draft Estimates for 1939-40 as the proposed grant to the Society during the ensuing financial year. This amount is an increase of £1,434 on the current grant, but a reduction of £1,657 on the subvention of £14,041 desired.

2. *Item 1—Secretary Increase of Salary.* Government is unable to approve of an increase in your salary while seconded for duty with the Society and only a normal increment in the grade £500 per annum by annual increments of £25 to £600 per annum should be provided. The provision of £600 will therefore be reduced by £61 to £539.

3. Government regrets to be unable to approve of the following new items in the Estimates:—

ITEM 12—Development of the Poultry Industry	...	£800	.
ITEM 13—Holdings Improvement Competitions	...	250	
ITEM 14—Promotion of Home Industries	...	100	
ITEM 15—Courses for Agricultural Instructors at Trinidad	...	150	

4. It is understood that Item 3, Agricultural Instructors and Field Services, £10,452, can be reduced by £800 on account of changes in personnel and it is suggested that the balance of £496 to make up the reduction in the Subvention required should be effected by employing 4 additional Foremen instead of 10.

(Sgd.) J. D. LUCIE SMITH,
for Colonial Secretary.

The information was noted.

(b) *Letter from C. S. O. re Auditing of Accounts.* The following letter was read :—

No. 4658/37

20th April, 1939.

"With reference to your letter No. 898 of the 15th March, 1939, in regard to the auditing of the accounts of the Jamaica Agricultural Society, I am directed to inform you that it is presumed that Messrs. Brennan and Parkinson will be notified of the decision made by the Board of Management of your Society if this has not already been done.

2. I am to ask that the Government may be informed as to the date on which the audit by the present auditors employed by your Society will be completed."

(Sgd.) J. D. LUCIE SMITH,
for Colonial Secretary.

The Secretary said that after consultation with the First Vice-President he had sent the following reply :

22nd April, 1939.

Sir,

I have the honour to acknowledge receipt of your letter No. 4658/37 dated 20th April, 1939, with reference to the auditing of the accounts of the Society.

2. I beg to inform you that Messrs. Brennan and Parkinson have been advised that there is no likelihood of their being re-appointed Auditors of the Society for the current year.

3. With reference to paragraph 2 of your letter—the date on which the audit will be presented by Messrs. Brennan and Parkinson—Balance Sheets, Financial Statement and Report of Audit are usually ready sometime in June in time for presentation to the Half-Yearly meeting in July.

4. At the present time the Society's Books are in the hands of Messrs. Brennan and Parkinson for completion of the accounts to the 31st March, 1939, but it is presumed that Government will be responsible for the Audit during the current financial year.

The Board of Management has already agreed to this, as you were informed in a previous letter, and it only remains for the matter to be regularised at the Half-Yearly meeting in July."

He had also advised Messrs. Brennan and Parkinson of the existing conditions and their likely result.

This action was approved.

(c) *Letter from C. S. O. re Trade License.* The following was read :—

No. 4918/38

5th April, 1939.

"With reference to your letter No. 95 of the 6th March, 1939, I am directed to inform you that the Government proposes to introduce legislation to exempt your Society from the necessity of taking out a Trade Licence under Law 7 of 1908 in respect of the trading activities in which it is engaged."

(Sgd.) J. D. LUCIE SMITH,
for Colonial Secretary.

The information was noted and the Secretary was directed to convey to Government the Board's appreciation of their action in this matter.

(d) *Letter from C. S. O. re Land Settlement Committees in Parishes.* The following was submitted :—

No. 1248/39

18th April, 1939.

"I am directed to inform you that the Governor proposes to appoint a Land Settlement Committee in each parish (except Kingston) to examine and make recommendations to the Commissioner of Lands as regards the suitability of properties offered and the demand for Land Settlement in the several districts of the parish.

2. It is proposed that the Committee in each parish should consist of :—

The Custos of the parish—Chairman;

The Member of the Legislative Council for the Parish;

A Member of your Society (to be nominated by your Society), and

Two Planters.

3. The District Lands Officer in each parish will be Secretary to the Committee for that parish.

4. I am to request that your Society will co-operate in this matter and be so good as to nominate one of its members for appointment to each of these Committees, advising Government of the names of such personnel.

(Sgd.) J. D. LUCIE SMITH,
for Colonial Secretary.

The following nominations were made:—

Mr. R. A. Burke for St. Thomas.
Mr. W. Harper Watson for Portland.
Mr C. L. A. Stuart for St. Mary.
Mr. D. D. Phillips for Manchester.
Mr. P. W. Sangster for St. Elizabeth.
Mr. C. O. Cover for St. Ann.
Rev. Morgan for St. James.
Major G. B. Pease for Hanover.
Mr. T. P. V. McDaniel for St. Catherine.
Mr. T. N. Duval for St. Andrew.
Mr. U. Theo. McKay for Clarendon.
Mr. A. C. Barnes, C.M.G., for Westmoreland.
Mr. H. L. Arnett for Trelawny.

(e) *Letter from Sugar Control Board re price of Canes.* The following was submitted and noted:—

No. S.C.B. 388/39

20th April, 1939.

"The Sugar Control Board has given careful consideration to the representations made by your Committee and to the representations and information supplied by the Sugar Manufacturers' Association.

2. The Board has been informed of a number of changes in the prices paid to cane farmers in favour of the farmers which manufacturers are prepared to put into effect during the present crop.

3. The Board has decided to advise Government not to exercise its powers under Law 43 of 1937 to fix the price paid for canes.

(Sgd.) H. H. CROUCHER,
Secretary, Sugar Control Board.

(f) *Letter from B. L. Williams and Co. re duty on Strawberry Boxes.* The Secretary stated that this firm represented that they had been compelled to pay duty on a shipment of Strawberry boxes imported recently. Their contention was that the duty was being exacted on a mere technicality and that discrimination was being shown. They argued that in addition to the provision for the admission of certain packages and bags, free of duty, barrels for putting up honey as well as tailors' and dressmakers' boxes were admitted free of duty. They asked that representations should be made to have the law amended.

Mr. Stuart suggested that this might be done.

Mr. McKay said that the amount involved being only 10/7d. and the strawberry trade being still a luxury trade he did not consider it the duty of the Board to make representations at this time.

The Secretary was directed to advise the firm that the Board did not consider the Strawberry trade sufficiently developed to admit of action being taken by them in this matter.

(g) *Application from Head Teacher Lluidas Vale School for grant for School Fair and Exhibition.* This application was submitted and the matter deferred until fuller information was available.

Reports from Committees.*(a) Instructors.* The following was presented:—

8rd May, 1939.

The Instructors Committee met this morning and report as follows:—

1. Draft letter to Government with regard to the handing over the Demonstration Plots to the Land Settlement Department was presented and accepted by the Committee.

2. Three weeks' leave of absence has been granted to Instructor Thompson as from 8th, to 27th May, 1939.

3. The Secretary reported that the work of Blight Control of potatoes in Manchester and St. Ann was progressing favourably.

4. Further letter from Instructor Thompson with regard to his loan was submitted. The Committee adhered to their former decision that the loan should not be granted.

5. The Committee approved of a letter being sent to the Instructors bringing to their attention the Committee's views on their getting into debt.

6. The Committee recommends that Headman Edie be given 6/- per month as travelling allowance.

7. They also recommend that Headman Harris who now receives 4/- per day, be given 5/- per day and that he should also receive 6/- per month for travelling.

8. Applications for affiliation from the following Branches are recommended:—

Hamilton Mtn.	(St. Mary).
Thompson Pen	(St. Catherine).
Culloden	(Westmoreland).

9. Letter from Government was received accepting the Society's proposals for the regrading of the salaries of the Field Staff, except in the case of the 2nd Class Instructors who were graded £200 to £300. Government's suggestion is that this should be £200 to £280.

The Committee accepted the Government's proposal, and approved of the revised scale of salaries and method of re-inbursement of travelling expenses being put into effect as from the 1st of April.

10. It was decided that the Chairman and Secretary prepare a memorandum to be submitted to the next meeting with regard to Instructors' work in connection with the Condensary now being established at Bog Walk.

11. Application from Foreman Scudamore for two weeks' leave was not granted.

(Sgd.) G. A. JONES, Chairman.

(Sgd.) ARTHUR THELWELL, Secretary.

18th April, 1939.

On the motion of Mr. McKay, seconded by Mr. McDaniel, the report was adopted.

(b) Re Appointment of Assistant Instructors. The Secretary stated that the last meeting of the Instructors Committee decided that a special meeting of the Instructors Committee should be held on the 14th April to make selections from the nine chosen applicants to fill the two positions advertised. On the same day the personnel of the Instructors Committee was altered. The clerk who sends out the notices of meetings of Committees was unaware of the change of the personnel of the Instructors and issued notices to the original Committee. When this was discovered on the morning of the meeting it was decided that the meeting should be called a meeting of members of the Board of Management and that the purpose for which it was called should be pursued and the results submitted to the Board for confirmation.

The Chairman asked if a report of the meeting was being presented.

Mr. Dunkley said it should first be decided whether the report would be admitted which would be tantamount to the approval of the meeting held on the 14th.

The Chairman said that although he did not want to be regarded as an obstructionist he felt that when mistakes were made they should be admitted and no attempt made at obscuring the vision of members as to the proceedings of the meetings and the decisions arrived at. The Instructors Committee could not have decided to hold a meeting

of the Board and his recollection was that a special meeting of the Board was fixed for the 14th April. He felt that effect should have been given to that decision instead of the meeting being conducted by another body.

Mr. Dunkley pointed out that according to the explanation made by the Secretary, a mistake was made in the office and the meeting held was neither a meeting of the Instructors Committee nor a meeting of the Board. It was for the Board to decide whether the proceedings of that meeting would be admitted.

The following was then read:—

REPORT OF A MEETING OF MEMBERS OF THE BOARD.

18th April, 1939.

A meeting of members of the Board of Management was held at the Society's office on the 14th April, 1939, at 9.30 a.m. to interview nine candidates selected for the two vacant positions of Assistant Agricultural Instructors.

Present: Hon. Geo. Seymour Seymour, O.B.E., 1st Vice President.

The Director of Agriculture,

Messrs. U. Theo. McKay, T. J. Cawley, T. P. V. McDaniel, D. D.

Phillips, C. L. A. Stuart, Hon. C. A. Reid, and Arthur Thelwell, Secretary.

The Director of Agriculture was elected Chairman.

The following candidates were interviewed:

Messrs. A. L. Robinson, D. H. Riley, E. U. McNamee, Dudley J. Phillips, A. W. Tucker, L. V. Gray, L. A. McNichol, R. H. Black, Clarence Hastings.

After the interviews, the following were elected by written vote for recommendation to the Board of Management for the two positions:

Messrs. Clarence Hastings, R. H. Black and Dudley J. Phillips.

The meeting then adjourned.

(Sgd.) G. A. JONES, Chairman.

(Sgd.) ARTHUR THELWELL, Secretary.

NOTE: Prior to the beginning of the meeting a discussion took place as to how the meeting was constituted in view of the resolution passed at the meeting of the Board of Management on the 5th April amending Bye-Law No. 15.

Arising out of the discussion it was decided that the meeting should be a meeting of the members of the Board of Management to make recommendations to the Board.

(Sgd.) G. A. JONES, Chairman.

(Sgd.) ARTHUR THELWELL, Secretary.

On the motion of Mr. Thompson, seconded by Mr. Stuart, it was decided that the proceedings as recorded should be admitted as minutes of the meeting, and on the motion of Mr. Dunkley, seconded by Mr. Stuart, the minutes were confirmed.

The Secretary then presented the following report:—

To The Board of Management:

ASSISTANT INSTRUCTORS.

Pursuant to the advertisement for two Assistant Instructors, 63 applications were received.

2. A meeting of members of the Board selected and invited the following candidates to attend to be interviewed:

A. L. Robinson, D. H. Riley, E. U. McNamee, Dudley J. Phillips, A. E. Tucker, L. V. Gray, L. A. McNichol, R. H. Black, Clarence Hastings.

3. It is recommended that two of the following three applicants be appointed:

Clarence Hastings

R. H. Black

Dudley E. Phillips

(Sgd.) ARTHUR THELWELL,

Secretary.

2nd May, 1939.

On the motion of Mr. Dunkley, seconded by Mr. Stuart, the report was adopted.

A ballot was taken and resulted in Messrs. Clarence Hastings and Dudley J. Phillips being selected for the positions of Assistant Instructors.

Mr. Dunkley obtained the suspension of the Standing Orders to admit discussion of item:

Resolutions from Branches.

(c) *Clarendon Juvenile Branches re Association.* The Secretary stated that the question of a Juvenile Association had been considered by the Board and the proposal rejected. It was then thought difficult and unwise to transport children to the centre at which meetings would take place. The Juvenile Branches in Clarendon had however, held a very successful mass meeting at which the following resolution was passed and the Board was now asked to reconsider the matter:—

"Be it resolved that this mass meeting of the Juvenile Branches of Clarendon here assembled form themselves into an Association to be known as the "Clarendon Juvenile Branches Associated" for the purpose of enhancing Juvenile Agricultural interests."

In reply to Mr. Thompson's question, Mr. Dunkley stated that there were fourteen Juvenile Branches in the parish.

Mr. Dunkley moved that the Association be recognised by the Board.

This was seconded by Mr. McDaniel.

Mr. McKay opposed the motion. He said there were too many Associations, Companies and Societies in Jamaica. The children had to attend school and private classes and their annual Pupil Teachers' Examinations and they should not be called upon to attend Half-Yearly meetings of Juvenile Branches. Children had also to give a certain portion of their time to their parents and he felt that the object at which this federation aimed would not be achieved. The Juveniles should be taught the elements of agriculture and animal husbandry so that when they reached the age of adults they would be able to take their places in the agricultural life of the colony. He suggested that the matter be deferred for six months to see if the existing enthusiasm of the Juveniles would then be still apparent.

The Chairman said that he was in sympathy with the movement which he thought was a very good one. He felt that contact of this kind would be very useful. This contact was being fostered as evidenced by the recent practice of schools in a body visiting the city to make contacts with city life.

Mr. Phillips said that although he thought the idea of bringing children together a very good one, he would oppose the motion on the pretext of the danger in transportation. He thought it sufficient for the Juvenile Branches to co-operate with the Parent Body.

Mr. Dunkley said he felt that some of his colleagues on the Board were not fully appreciative of the services that would be rendered by the federation of the Juvenile Branches of one parish. The meetings of the Association were held annually and not half-yearly as was pre-supposed, and his opinion was that the value of such federation was inestimable. The parents were entirely with the movement and in the matter of transportation the most progressive schools in the Island were fostering contacts with sections other than their own and this could only be effected by transportation, so that progress would be retarded if this element which was negligible should be taken into account. It should be borne in mind that many members of the

Juvenile Branches were past pupils of schools who were grateful for the inauguration of the Juvenile movement.

The motion was put to the vote, and there being four votes for and four votes against its adoption, the Chairman gave his casting vote in favour of it and it was declared carried.

Reports from Committees.

(c) *Citrus*. The following report was presented and received.

2nd May, 1939.

To The Board of Management :

REPORT CITRUS COMMITTEE.

1. The Citrus Committee appointed to find the Perfect Jamaica Orange met on the 14th April.

2. It was decided that—

i. The Secretary, Director of Agriculture and the First Vice President be asked to draft rules with regard to the competition and that a meeting be called to adopt them and to start publicity on the matter.

ii. That the Rules governing the competition be so framed as to provide—

(a) That oranges should not be reaped without a responsible officer of the J.A.S. being present

(b) That not less than one dozen Oranges be submitted as specimens.

(c) That the fruit offered for competition be reaped from a tree the property of the Exhibitor.

(d) That two prizes be offered—and that the periods be for fruit between March, April and May—and September to October.

(e) Specimens to be of a true Jamaica Orange as well as hybrid varieties and that all the named varieties be excluded.

(f) That a fixed price be agreed on for selling the tree so as to render the procuring of budwood easy.

3. These details are being worked out and a publicity campaign will be started as soon as possible.

(Sgd.) ARTHUR THELWELL,
Secretary.

(d) *Cement*. A confidential report of this Committee was passed round to the members.

(e) *Office*. A report was submitted and corrected to read as follows :

3rd May, 1939.

The Office Committee met this morning and beg to report as follows :—

1.—ACCOUNTANT'S POSITION—REGRADING—HONORARIUM :

That the Accountant be given a gratuity of £25 for work done in connection with the Banana Improvement Campaign : and that the matter of his regrading be deferred until the co-ordination of the Agricultural Services is being considered.

2.—SENIOR CLERKS—REGRADING :

That the regrading of the Senior Clerks be deferred until the co-ordination of the Agricultural Services is being considered and that the matter be brought up then.

3.—ARRANGEMENTS SEED DEPARTMENT :

That an extra clerk be employed temporarily in the Seed Department : that he be paid a salary of 30/- to 40/- per week by increments of 5/- per annum ; that the arrangement be tried for six months ; and that the sum of £10 be allocated for office fittings.

4.—DEBTS :

That certain debts be referred to the Society's Solicitors.

(Sgd.) ARTHUR THELWELL,
Secretary.

On the motion of Mr. Cover, seconded by Mr. Stuart, the report was adopted.

Diseases of Plants and Animals: Insect Pests.

(a) *Panama Disease of Bananas—Reports for January and February.* These were laid on the table, after the Secretary stated that copies had been issued to individual members of the Board.

Mr. Cover asked if the Director of Agriculture had had opportunity to go into the matter of the form in which the reports were presented as was suggested by him at a previous meeting.

The Director of Agriculture said that if it was the wish of the Board that he should endeavour to make the information contained in the report more easily interpretable, he would see what could be done.

The Secretary was directed to write to the Director in the terms of the wishes of the Board.

(b) *Order amending regulations re importation of horses.* Letter from the C.S.O. No. 2928/32 dated 25th April, 1939, covering Order directing that the Regulations made by the Governor in Privy Council under Law 11 of 1932, prescribing the countries from and the conditions upon which horses intended for racing may be imported into Jamaica, shall be amended, was submitted and the information noted.

Small Stock Subsidies.

(a) *Application from E. R. Peart for half-cost of boar.* Mr. Cover moved that provided the requirements of the regulations were fulfilled the application should be granted.

Mr. McKay said that the application being from an individual he was opposing the motion.

This was seconded by Mr. Stuart.

The application was accordingly not granted.

(b) *Application from John Austin for half-cost of Buck, and (c) Application from Rose Valley for half-cost of Buck,* were both submitted, and amounts of £1 11s. 6d. and 10/6 respectively were granted on the assurance of the Secretary that the regulations governing subsidies were complied with.

Purchase of Buck.

The Secretary stated that Mrs. Ethel Henderson, widow of the late Instructor had a very fine Saanen buck for sale. He asked that authority be given for the purchase of this animal for loan to Branches.

The price was discussed and it was decided that £5 5/- should be paid for the buck.

Mr. McKay warned that care should be taken as to whom the buck was sent.

Office. (a) Letter from Development and Marketing Officer re loan of Cornmill. The Secretary said the following letter had been forwarded to him by the First Vice-President to whom it was addressed.

No. 122/39

18th April, 1939.

"You will recollect that discussions took place in regard to the possibility of this Division taking over, at an agreed valuation, the corn mill which is now on the Society's premises.

2. In view of the fact that this Division will in future supply corn and cornmeal and similar manufactured products for the Society's retail trade, it would be of distinct advantage if pending the finalisation of such arrangements, the Division could be permitted to have the mill and motor to drive it on loan. Possibly, you would be prepared to authorise this, as the Secretary feels that he should have authority other than his own before taking any such action in the matter.

3. Naturally should the negotiations for the transfer of this equipment not materialise, this Division would be responsible for returning and installing the mill in good condition.

(Sgd.) F. E. V. SMITH,
Development and Marketing Officer.

After discussion, on the motion of Mr. Stuart, seconded by Mr. Phillips, it was agreed that the mill should be loaned, as requested.

(b) *Application from Miss Hilton for one month's leave during the month of June was granted.*

Resolutions from Branches.

(a) *Hampshire re Land Settlement.* The Secretary was directed to forward to the Land Settlement Commissioner the resolution which dealt with the payment for lands under the new Land Settlement Scheme.

(b) *Maldon re (i) Spraying for Leaf Spot.* This resolution asked that spraying should be encouraged without being made a compulsory measure.

The Secretary was directed to advise the Branch that the Board could not take action in this matter, because as far as they were aware spraying was not compulsory although it was considered very desirable.

(ii) *Crown Lands for Land Settlement.* This resolution requested that Government be asked to consider further the sale of Crown Lands in that area for the purposes of Land Settlement.

The Secretary was directed to refer this to the Commissioner for Lands.

Authorised Persons.

(a) *Return of Arrests for Quarter ended 31.3.39* This was presented and the Secretary instructed to publish a summary of the same in the Journal.

New Members.

On the motion of the Chairman, seconded by Mr. McKay, the following were admitted to the membership of the Society:—

T. Church, c/o Miss A. Glanville, Fern Hill, Mile Gully.

J. C. Walenta, 4 Eureka Road, Cross Roads.

J. Steadman, Woodstock, Buff Bay.

Mrs. R. S. Humphreys, 4 Marley Road, Halfway Tree.

Other Business.

(a) *Letter from Department of Agriculture re Committee on Protection of Wild Birds.* The following was presented:—

No. FB 8/38.

1st May, 1939.

"A Committee was appointed by the Governor last year to make recommendations regarding the close seasons and other measures to ensure the protection of wild birds.

Owing to a number of reasons only one meeting has been held and the Committee has now been reconstructed as follows:—

Forest Officer (Chairman).

Hon. C. A. Reid,

Hon. S. R. Cargill,

Inspector General of Police,

Mr. Owen Samuel,

Mr. Arthur McGrath,

Mr. Guy Robison,

Mr. G. G. Cooke,

Mr. W. H. Edwards,

I would be glad to know if your Society would be prepared to nominate a member to serve on this Committee: if so, I will secure the authority of Government for the additional appointment.

As I understand that you are holding a Board meeting on Wednesday, I venture to suggest that in order to avoid delay a representative be selected pending formal approval by Government.

(Sgd.) C. SWABBY,
Forest Officer,

Chairman, Bird Protection Committee.

On the motion of Mr. Phillips, seconded by Mr. Stuart, Mr. McKay was nominated to serve on the Committee.

Mr. Thompson expressed his apologies and left the meeting and Mr. McKay took the chair.

(b) *Application from Cascade Branch for additional grant of 10/6 towards subsidy for buck.* The Secretary stated that the buck obtained for this Branch under the Small Stock Subsidy scheme had cost a Guinea more than was anticipated. The Branch was subscribing an extra amount of 10/6d. and requested that the Board grant a further amount of a similar sum.

The application was granted.

(c) *Application from Manchioneal Juvenile Society for Grant for prizes for Agricultural and Handcraft Show.* On the presentation of this application a grant of One Guinea was authorized.

(d) *Resolution from Thicketts Branch re Road.* This resolution requested that efforts be made to have work which was started on the road through the district in 1938, be completed as soon as possible.

The Secretary was directed to refer the matter to the St. Ann Parochial Board.

(e) *Resolutions from Clarendon Branches Associated re: (i) Road.* This resolution relative to the No. 12 Parochial Road was directed for reference to the Parochial Board.

(ii) *Medical Facilities.* The Secretary was directed to forward to the Director of Medical Services three resolutions relative to, (a) the services of D.M.O.s, i.e. the relieving of an officer during periods of leave; (b) a Parochial Dispensary for Smithville and a Government Dispensary for Milk River area.

(iii) *Wrapping of Bread for Sale.* The Secretary was directed to forward this resolution which asked that efforts should be made to have loaves exposed for sale suitably wrapped, to the Parochial Board.

(iv) *Postal Services.* Resolutions relative to improvement of the services at Toll Gate and Osborne Store Post Offices and the reinstatement of the Telephone service at Clarendon Park were submitted and the Secretary was directed to refer them to the Postmaster for Jamaica.

(v) *Railway Siding at Rock.* This resolution asked that Government be requested to improve the existing Halt at Rock into a regular Siding.

The Secretary was directed to refer the same to the Director of the Railway.

(vi) *J.P. for Milk River area.* The Secretary was directed to forward this resolution to the Custos for the parish.

(vii) *School at Sunbury.* The Secretary was directed to forward to the Department of Education this request for the erection of a School at Sunbury.

(viii) *Tobacco Industry.* This resolution conveyed appreciation of the services of the Tobacco Division in the parish and requested that Government be asked to extend this service to include the growing and curing of Virginia Tobacco.

The Secretary was instructed to refer this to the Director of Agriculture.

(ix) *Ginger Industry.* This resolution asked that the unprofitable state of the industry be brought to the notice of Government and that the sale of the product be placed in charge of the Marketing Division.

The position of the industry was discussed and the reduction of price due to competition with African ginger which was available at 16/- per 100 lbs. was considered.

It was finally decided that the whole question should be sent to Government or a full investigation not only in so far as it concerned the Trade Agent in England but also that every means at their command be used to find out what could be done to relieve the situation which was considered very serious.

(x) *Services of Secretary.* This resolution expressed appreciation of the services of the present Secretary seconded for service from the Department of Agriculture. It also expressed the desire that at the expiration of the period of secondment in September, these services should be retained, by making his emoluments more attractive to warrant his considering continuance in the service of the Society.

Mr. Stuart said he was glad that Clarendon expressed this appreciation, and it would be a sad day for the Society if these services were lost. He suggested that if there was any avenue open Government should be approached with the request that the services of Mr. Thelwell should be continued to the Society.

Mr. McKay also spoke in appreciation of Mr. Thelwell's work and added that he did not anticipate any difficulty in the near future of Government removing the present Secretary from his present position. He thought appreciation of the resolution should be expressed and the Association advised that the Board had already taken the necessary steps in regard to the matter of emoluments.

In reply to a question from Mr. Cover, the Secretary stated that his present emoluments were £750 per annum with travelling allowances in addition.

It was decided to ask the First Vice-President along with the Director of Agriculture to interview the proper authorities and put before them the desirability of having Mr. Thelwell permanently appointed as Secretary of the Jamaica Agricultural Society.

The meeting adjourned to Wednesday, the seventh day of June, 1939, at 11.30 a.m.

BOARD OF MANAGEMENT.

THE regular monthly meeting of the Board of Management of the Jamaica Agricultural Society was held at the offices of the Society, 10—12 North Parade, Kingston, on Wednesday, the 7th June, 1939, at 11.30 a.m. There were present: Mr. U. Theo. McKay, Third Vice-President, in the chair; Messrs. C. O. Cover, T. P. V. McDaniel, D. D. Phillips, C. L. A. Stuart and W. Harper Watson; Messrs. P. St. L. Bacquie and A. P. Hanson, Supervisors of Instructors and the Secretary, Arthur Thelwell. Shortly after the meeting began, the Hons. M. H. Segré, C. A. Reid, A. B. Lowe and the Hon. and Rev. J. W. Maxwell attended.

Apologies for Absence.—

Apology for absence was submitted on behalf of the First Vice-President, the Hon. G. Seymour-Seymour, O.B.E.

Confirmation of Minutes of the previous Meeting.

The Minutes of the previous meeting having been sent to members, they were taken as read and on the motion of Mr. Phillips seconded by Mr. Stuart, were confirmed.

Matters arising out of the Minutes.

(a) *Report of Marketing Committee.* The Secretary submitted the following memorandum:—

A meeting of the Marketing Committee along with the Development and Marketing Officer took place at the Marketing Division on Wednesday, the 17th May.

Details of the arrangements with Mr. Facey and how these had worked for one month were reviewed and certain proposals submitted by the Marketing Officer were discussed.

It was decided that new arrangements should be made with Mr. Facey and that the information with regard to these arrangements be conveyed to the Secretary in time for the Board meeting.

The Marketing Officer has however, been asked to attend the meeting and explain the position.

(Sgd.) ARTHUR THELWELL,
Secretary.

The report was adopted.

The Marketing Officer who was in attendance explained the situation in detail and outlined the new policy which he proposed to pursue.

It was decided to await further developments.

(b) *Letter from C.S.O. re Standing Committee on Agricultural Activities.* The following was submitted and noted:—

C.S.O.

19th May, 1939.

No. 1367/39.

"With reference to your letter of the 6th May, 1939, I am directed to inform you that the Government has appointed the Honourable George Seymour Seymour, O.B.E., First Vice-President of your Society, to be your Society's representative on the Standing Committee which has been appointed to co-ordinate the activities of the Department of Agriculture, the Lands Department, the Marketing Division, the Jamaica Agricultural Society, and the Agricultural Loan Societies Board."

(Sgd.) J. D. LUCIE-SMITH,
for Colonial Secretary.

(c) *Land Settlement Committees—Correspondence.* The Secretary stated that all the nominees selected by the Board at their last meeting, with the exception of Mr. Sangster who was nominated for St. Elizabeth, had agreed to serve on the various parish Committees.

In the meantime Government had expressed the desire to have the list and after consultation with the First Vice-President who instructed that Mr. H. W. Lynch, ex-Agricultural Instructor residing in St. Elizabeth be requested to serve, a complete list including the name of Mr. Lynch who had agreed to serve, had been forwarded to Government.

The Board approved of the action taken in this matter.

(d) *Application from Lhuidas Vale School for grant for Fair and Exhibition.* The Secretary stated that there was no Juvenile Branch of the Society associated with the school.

It was decided that it would not be practicable to deal with applications for grants for such projects other than from the Juvenile Branches, and the Secretary was directed to convey to the Schoolmaster the sympathy of the Board with the undertaking and to express their regret at not being able to make a grant.

(e) *Letter from Department of Agriculture re Reports on Panama Disease.* Letter No. 4713/39 of the 18th May, 1939, stating that the representations from the Board on the subject of the returns submitted in connection with the incidence of Panama Disease, was receiving attention, was presented and noted.

(f) *Services of Secretary—Letter from Department of Agriculture.* Letter No. 4794/39 dated 27th May, 1939, stating that the Director of Agriculture was in communication with the First Vice-President with regard to arrangements for the continuation of the services of the Secretary, Mr. Thelwell, with the Society was submitted and noted.

Accounts.

(a) *Statement of Accounts for May.* The monthly statement was laid on the table and the Secretary directed to transmit copies to the members.

(b) *Annual Statement.* The financial statements for the year ending 31/3/39, prepared by the Auditors were submitted.

In reply to a query, the Secretary said that he had not yet received their report.

The statements were considered in detail, and on the motion of the Rev. Mr. Maxwell seconded by Mr. Stuart they were adopted.

Questions.

Hon. Segré re Instructor for Westmoreland. Mr. Segré asked what arrangements were being made for the parish of Westmoreland with regard to the services of an Agricultural Instructor.

The Chairman said that the matter had been dealt with at the meeting of the Instructors Committee and the report which would be presented to the Board would reveal the arrangements.

Hon. Lowe re services of Instructor for St. James. Mr. Lowe asked if it was proposed to remove Mr. Hastings and put the work being undertaken by that Instructor in the hands of an Assistant Instructor.

The Chairman said that matter had also been dealt with by the Instructors Committee and the report would convey the reply to the question.

Half-Yearly Meeting.

The Secretary stated that the Half-Yearly meeting was scheduled to be held at St. George's Hall on Thursday the 27th July, 1939, and the necessary arrangements were in progress.

This was noted.

Communications.

(a) *Letter from C.S.O. re Railway Passes.* The following was submitted:—

C.S.O.

20th May, 1939.

No. 992/31.

"With reference to your letter No. C.S.O. 4 of the 17th April, 1939, in regard to the issue of railway passes to the members of the Board of Management of your Society. I am directed by His Excellency the Governor to inform you that he is not prepared to vary the decision already conveyed to you which, in his opinion, is correct.

2. His Excellency has also requested that you may be informed that if the Board desires to press for an interview on the subject, he will receive a deputation at Headquarters House on Tuesday, the 30th May at 10.15 a.m."

(Sgd.) A. G. GRANTHAM,
Colonial Secretary.

The Secretary stated that on receipt of the letter he had consulted with the First Vice-President and later with the members appointed to serve as the deputation, and eventually the interview was abandoned.

The letter was noted.

On the motion of the Chairman seconded by Mr. Stuart a deputation of the Vice-Presidents who were not members of the Legislative Council, Mr. McDaniel and Mr. Phillips was named to wait on the Association of the Elected Members to place the matter before that body.

(b) *Representation from Jamaica Milk Products Ltd., re £4,500 for Improvement of Dairy Industry.* A letter from the Jamaica Milk Products Ltd., was presented. The letter pointed out that a sum of money was donated by the Company for improvement of Dairy Service Bulls; that a Committee would be set up to administer the project and that the Society was requested to elect a member to serve on the Committee.

On the motion of the Chairman seconded by Mr. Stuart, Mr. McDaniel was nominated to serve on the Committee.

(c) *Invitation from St. Thomas Branches Associated re Half-Yearly meeting 17/6/39.* This was presented and noted.

(d) *Invitation from Fruitful Vale School re Show and Exhibition and application for grant.* This was submitted.

The invitation was noted. The Secretary was directed to convey to the school the Board's sympathy in the movement and their regret that as there was not a Juvenile Branch of the Agricultural Society connected with the school the application for a grant could not be entertained.

Reports from Committees.

(a) *Instructors.* The following was submitted:—

7th June, 1939.

The Board of Management:

The Instructors Committee met this morning and beg to report as follows:—

1. *Instructors and Condensary:* Draft circular with instructions to Instructors was presented by the Secretary and accepted after minor alterations.

2. *Assistant Instructors—Allocation of Districts:*—It was decided—

- i. That Mr. Phillips be sent to St. Thomas under tuition by Instructor McLaren for two weeks. After that he is to be placed with Mr. Lynch for a month and then put in charge of St. Elizabeth.
- ii. That Foremen Mullings and Black be shifted to Westmoreland.
- iii. That Instructor Hastings relinquish charge of St. James and take charge of Westmoreland in addition to Hanover.
- iv. That the newly appointed Assistant after training be placed in charge of St. James.

3. *Summer Course at Hope:*—A Course of one week for Instructors will be held at Hope beginning on Monday, 24th July.

4. *Loans—Foreman Black:*—This application for a loan was not entertained.

5. *Applications for Affiliation:*—The following applications for affiliation are recommended to the Board:—

Harewood	(St. Catherine)
Mt. Moreland	"
Mt. Carey	(St. James)
Shrewsbury	(Portland)
Panton—Mt. Pleasant	"
Alexandria	(Westmoreland)

6. *Travel Scholarship—W.I. Sugar Co.*—A sum of £200 has been donated by Mr. R. L. M. Kirkwood on behalf of the West Indies Sugar Company for a Travel Scholarship to enable two Instructors to proceed to Trinidad for a three months Course. The Committee accepted the Scholarship and placed on record their appreciation of the splendid gesture of the West Indies Sugar Company.

The Committee also thanked the Secretary for his instrumentality in the matter.

7. *Application from Inspector Russell for travelling to Demonstration Holdings* :— This matter was referred by the Director of Agriculture; it was decided not to entertain this application.

8. *Assistant Instructor Mr. C. Hastings* :—Mr. C. Hastings wrote asking to be relieved of his appointment of Agricultural Instructor.

The Committee acquiesced.

It was decided to fill the vacancy from among the other nine selected candidates and to call a special meeting of the Committee to deal with this matter.

(Sgd.) U. THEO. MCKAY, *Chairman*.

(Sgd.) ARTHUR THELWELL, *Secretary*.

On the motion of Mr. Segre seconded by Rev. Maxwell the report was adopted.

(b) *Cement*.

The Report of the sub-committee and a memorandum covering proposals to Government were considered *en camera* and adopted.

The Secretary was instructed to transmit the Memorandum to Government.

Small Stock Subsidies.

(a) *Application from Epsom Branch for half-cost of Buck*.

(b) " " *Rock* " " " "

(c) " " *Maidstone* " " " "

On the Secretary's assurance that the requirements in this connection had been met and that the regulations governing subsidies would be carried out, sums of 15/6d., One and a half Guineas and One Guinea were authorised to the Branches respectively.

(d) *Subsidies for two Bucks*. The Secretary stated that he had purchased two bucks at One Guinea each and had sent them to Mr. Lewin of Hayes district and Mr. Graham the Instructor for Portland for service in those areas.

The Board approved of this action.

Juvenile Branches.

(a) *Application from Mt. Carey School and Juvenile Branch for grant for School Exhibition*. The application was submitted and a grant of 10/6 was made.

Competitions.

(a) *Report on White Yam Competition—St. Ann*. The Secretary submitted a report on the White Yam Competition in St. Ann. He said the prizes had been presented at the Half-Yearly meeting of the St. Ann Branches Associated. He also stated that the report would be published in the Journal.

(b) *Resolution from Crofts Hill Branch re White Yam Competition, Clarendon*. The Branch requested that the Parish be divided into into two or three sections for the purposes of the Competition, and that a competition be carried through in each such section.

Consideration of this matter was deferred.

Diseases of Plants and Animals: Insect Pests.

(a) *Panama Disease of Bananas—Report for March*. This was submitted and the Secretary was directed to forward copies to members as usual.

Resolutions from Branches.

(a) *Mid-Clarendon re appreciation of Secretary's services.* This resolution conveyed the appreciation of the Branch for the services of the Secretary in connection with the agricultural interests of the Island. It also conveyed an invitation for the Secretary to visit the Branch.

The resolution was noted and the Secretary was authorised to make the visit when convenient.

(b) *Porus re Government aid to citrus growers with less than 5 acres.* The Porus Branch requested that efforts should be made to have the minimum acreage on which Government aid to growers would be given changed from five to two acres. The resolution also asked that budded plants of standard varieties be supplied by Government at 3d. each for fifty such plants, instead of the stated twenty-five.

This matter was discussed and the Board was in accord with the request regarding the acreage under which Government aid should be given. It was felt that it should be reduced to one acre.

It was decided that this matter be brought up at the next regular meeting of the Board with all necessary information so that further consideration may be undertaken and recommendations made to Government in this respect.

The Board did not entertain the request regarding the price of budded citrus plants.

(c) *Maidstone-Bourbon re Land Settlement.* This resolution conveyed the request that Government be asked to purchase a portion of "Darley" for the purposes of Land Settlement, and the Secretary was directed to forward the same to the Commissioner for Lands.

(d) *St. Ann Branches Associated re (i) Ground Provisions and vegetables.* This resolution asked that Government should control the marketing of these products in order to prevent the exploitation of growers.

Mr. Cover said this resolution brought out the point which had been raised in connection with the subject of Marketing, i.e., more even distribution of foodstuffs, which principle had been accepted by the Marketing Committee and the Marketing Officer.

The Secretary was asked to develop the idea as to how more even distribution could be accomplished.

(ii) *Measuring of coconut oil.* This resolution requested that Government should be made aware of the practice of purchasers of this commodity to fill the portion of the measure provided for an overflow, thus compelling producers to supply more than four quarts to each gallon.

The Secretary was directed to take up the matter with the Inspector General of Police.

(iii) *Headman for Dry Harbour Mountains area.* Mr. Cover said the resolution was supplementing what he had been urging; the question was thoroughly gone into and a tentative promise had been made that a headman would be placed in the section.

The Secretary stated that action had been taken on the matter. The Director of Agriculture had sent an officer of the Department to visit the area in regard to the development of citrus there.

On the motion of Mr. Cover seconded by Mr. McKay the Board decided that a Headman should be appointed for the area.

New Members.

On the motion of Mr. Cover seconded by Mr. Stuart the following were added to the membership of the Society:—

Mrs. Frank Ramson, 18 Ruthven Road, Half-way Tree.

U. D. Mowatt, Duncan Pen, Windsor Park Road, Spanish Town.

W. R. S. Ladell, W.I. Sugar Co., Ltd., Amity Hall, Alley.

Mrs. H. B. Stone, 89 Constant Spring Road, Half-way Tree.

Joseph Edward Somerville, 2 Upper Oxford Street, Kingston.

Noel J. Sorapure, Port Maria.

H. T. Littlejohn, Hopewell, Orange Bay.

K. T. Roberts, Magdalena Fruit Co., Reg. of Colombia.

Hugh Buchanan, c/o Lands Dept., North St., Kingston.

Other Business.

(a) *Letter from C.S.O. re appointment of Mr. McKay on Committee for the protection of Birds.* The following was submitted:—
C.S.O. 31st May, 1939.

No. 717/38.

"With reference to your letter No. 18 of the 22nd May, 1939, I am directed to inform you that the Government has appointed Mr. U. Theo. McKay to be the representative of the Jamaica Agricultural Society on the Committee which has been appointed to consider and advise as to the desirability of continuing the close season for the shooting of birds, its duration and the species of birds to which it should apply, and to make any other recommendations which may appear to be desirable for the purpose of protecting birds from undue destruction.

2. I shall be glad if Mr. McKay may be informed accordingly."

(Sgd.) J. D. LUCIE-SMITH,
for Colonial Secretary.

The information was noted.

(b) *Application from Brittonville Juvenile Branch for grant for Poultry Project.* The application was presented and a grant of 10/6d. was authorised.

Poultry Industry.

Mr. Cover asked what progress had been made with regard to the proposed arrangements for the improvement of the Poultry Industry of the Island.

The Secretary stated that Government had asked for a memorandum with regard to certain costs, but the data was not available. He had induced two members of the Society to carry out poultry keeping on the lines that were proposed in the report submitted to Government. As soon as the data was made available by these two poultry keepers the necessary information would be forwarded to Government when the matter could be taken further.

(c) *Use of Marquees for Dog Show.* The Secretary stated that Marquees had been hired for the Poultry and Dog Show held in Kingston recently, but they were not used as poles for putting them up were not available. The promoters of the Show requested that a refund of the hire should be made.

The Secretary was directed to make the refund.

(d) *Establishment of Nurseries: Memo from Forest Officer.* The following was submitted:—

I have made arrangements with Agricultural Instructors Byles, Kelly and Robotham to visit their districts this week with a view to selecting nursery sites for the establishment of timber trees. Seed of mahogany and mahoe is now coming in and other suitable species will be added as and when seed is procurable.

I have made a provisional allotment of £45, (i.e. £15 per nursery) but much will depend on the site selected and the amount of supervision available. Our costs for raising seedlings of these species on an extensive scale is from 4/- to 6/- per 1,000, exclusive of supervision, but on starting small new nurseries the cost will probably be higher.

(Sgd.) C. SWABBY,
Forest Officer.
S.S.39.

The Secretary was directed to thank the Forest Officer for his action in the matter.

(e) *Resolutions from Comfort Castle Branch re: (i) Road.* This resolution conveyed the request that the speedy opening of the Bath Mill Bank road be urged.

The Secretary was directed to forward the resolution to the Public Works Department.

(ii) *Banana Varieties.* The Branch requested that steps be taken to obtain banana suckers free from Panama Disease to be planted in newly opened Crown Lands.

The Secretary was directed to see what could be done in this connection.

(f) *Society's representation at Centenary of Royal Agricultural Society.* Invitations from the Royal Agricultural Society of England to the Royal Agricultural Show to be held from the 4th to the 8th July, 1939, at Windsor Great Park, was presented.

The Secretary stated that the First Vice-President had suggested that Commander Clarke, a member of the Society, who would be in England during the period should be requested to represent the Society.

This was agreed to.

It was also decided that Mr. Cawley should be asked to take part in the representation should he be in England at the same period.

(g) *Secretary's Report on travelling for May* was submitted and noted.

(h) *Application from Sir Charlton Harrison for leave of absence* from the 6th June to sometime in November, was approved.

The meeting then adjourned to Wednesday, the 5th July, 1939, at 11.30 a.m.

REPORT OF NEW GREEN SHOW.

A T New Green district, situated a few miles from Mandeville, the second annual display of Fruits, Vegetables and Small Stock was staged by the local Branch of the Jamaica Agricultural Society on Friday, the 31st March, 1939.

Exhibits were not as numerous as on the previous occasion, owing no doubt to the prolonged drought during the first three months of the year.

The six classes of Citrus and the various classes of vegetables were all fully represented however, and received favourable comment from the large number of visitors. Many children of the school had gone in for the rearing of poultry, goats, pigs and rabbits especially in view of the Show and the results were very gratifying.

An interesting feature of the day's proceedings was the meeting held in the schoolroom at 2.30 p.m. Mr. H. E. Lewis, Chairman of the Manchester Parochial Board, welcomed to the district representatives of different aspects of agricultural life in the Island. Among these were Mr. L. A. Powell, Superintendent of Grove Place Farm, and Mr. O. P. Martin, Supervisor of Agricultural Training in the Education Department. They were very pleased with the Show and exhorted the large gathering to press on in their efforts for agricultural improvement. The Parent Society was represented by Mr. P. St. L. Bacquie, Supervisor of Instructors for the western parishes, and Mr. H. A. Darby, Agricultural Instructor for Manchester.

New Green is a district of great possibilities and it is hoped that this Exhibition has given the necessary fillip to the increasing agricultural activity of its energetic inhabitants.

THE SOCIETY'S FIELD STAFF.

DUE to the death of Mr. Henderson, who was in charge of St. Andrew, and the resignation of Mr. Shirley who was in charge of Westmoreland, the Society has been operating with a shortage of field staff.

Mr. Shirley resigned to take up work with the Land Settlement Department. He takes with him the best wishes of the Society.

Since the resignation of Mr. Lynch, St. Elizabeth has been operated as a part of a double district with two foremen under the direction of Mr. Darby, Instructor for Manchester.

At the time of writing, both St. James and Westmoreland are also without instructors and the districts are being worked under Mr. Hastings (Hanover) and Mr. Wray (Eastern St. Elizabeth) with foremen.

Luckily Instructor Marr who used to be in St. James, but was seconded to the Marketing Division returned to the Society and is now in charge of St. Andrew.

This situation—having vacant districts—will, however, soon be remedied as two Assistant Instructors have been recently appointed and after extra training will be put in charge of districts.

The newly appointed Assistants are Messrs. Dudley Phillips and A. L. Robinson.

They were selected from 63 applicants and give promise of becoming successful Instructors.

Both were trained at the Farm School and have, since their graduation, gained valuable experience in Agriculture.

The field work has only progressed, as undoubtedly it has done, despite the shortage of staff, as a result of the extra work, time and energy put in by the balance of the field staff. They have carried on for long hours overtime in order to help the situation.

And of course the foremen and headmen have been of great help.

We now have 8 foremen and 4 headmen, and they have been of great assistance in helping the Instructors to get through more work. Four are to be appointed this year (ten were asked for, but the money could not be found) and it is going to be a job to apportion them between those districts which are wanting assistance so badly.

The work of Instructors keep piling up. New branches are formed month after month—both adult and Juvenile; Instructors are called upon these days to undertake all forms of extra work such as the spraying of potatoes and it is a stiff job to keep up with the ever growing demand for their services.

Two of our Instructors are going to be lucky as a small scholarship has been generously donated by the West Indies Sugar Company for sending them abroad for further experience. This is a splendid move. The Instructors will get a much-needed and well-deserved change and will return with new ideas, better equipped for their work.

Looking at the question then from the broad point of view, it must be admitted that despite the fact that some districts have been on short rations with instructional services the Field Staff is steadily improving and is giving good, solid service to the Island.

A. T.

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FOREST RESERVES IN JAMAICA.

By C. SWABEY—*Forest Officer.*

THERE appears to be a certain amount of misconception in the Island both with regard to the policy of forest reservation being pursued by the Government and to the actual function of the Forest Reserves themselves.

In this note an attempt will be made to clarify the position though it will not be possible to enlarge on the important works of protection, reafforestation, development, etc., of the Reserves, without which mere reservation is valueless. It is hoped to explain these matters in later articles.

Function of Forest Reserves.

- (i) *Rainfall.* A widely held belief in Jamaica is that forests increase rainfall: it must be emphasised that in an island such as this rainfall is controlled by the major factors of wind and topography and that forests have a relatively small influence on actual precipitation.
- (ii) *Water Supplies.* The effect of forests on availability of water is, however, enormous. On denuded areas the rains run off the surface of the land, straight into the streams, causing floods during the period of heavy rain and drought in periods of low rainfall. On forested land, the drops of rain first strike the trees and bushes, then filter through the forest litter and humus and are absorbed in the loose soil beneath and then infiltrate into deeper layers of soil and rock. The importance of forest cover in promoting this deep infiltration of water into the sub-soil storage reservoirs can hardly be over-estimated: instead of alternate floods and drought, the stream flow is regular and the water clear.
- (iii) *Erosion.* Forests bind the soil and preserve it from being washed out by heavy rains. This is of great importance in hilly country where landslides and gullies can do extensive damage.
- (iv) *Silting of streams and reservoirs.* Steams rising on deforested hills carry heavy loads of silt, which are deposited in the river beds, thus reducing their carrying capacity and causing floods. The sedimentation of the Hermitage Dam, due to unsuitable agricultural methods on the deforested sections of the catchment is causing considerable alarm.
- (v) *Timber and other forest produce.* The importance of cheap and easily available timber, firewood, fence posts, etc., etc., is sufficiently obvious to require no further elaboration.
- (vi) *Other functions.* Forests have a good effect on the climate by moderating extremes of heat and cold and by preserving its humidity. Forests often have value as windbelts, breaking the mechanical force of strong winds and helping to prevent drying up of the soil.

Nor must we forget that much of the beauty of Jamaica is enhanced by its forested hills: we have only to look at some of the bare, scarred hillsides of St. Andrew and Clarendon to appreciate what we have lost in scenic value. Forests provide shelter and breeding places for many rare and interesting birds and other forms of wild life.

Reservation Programme:

In framing a reservation programme for Jamaica there are two fundamental and opposed considerations to be kept in mind.

1. In an agricultural country of limited area and increasing population it is essential that all land of agricultural value should be developed.
2. At the same time there are inevitably certain areas which, by reason of their high rainfall, steep slopes and erodible soils, cannot be put under cultivation without seriously affecting the welfare of the community.

The task of assessing correctly the various factors involved is by no means an easy one, and it is difficult to look ahead and preserve the correct proportion of our natural resources of forest, soil and water. Before any attempt can be made to select areas for Forest Reserves it is essential for us to realise that forests must be a phase of land usage incorporated into a *planned* development of the land. It is hopeless to expect a block of forest along a hilltop to prevent erosion, if the slopes below the forest are cultivated with no regard to conserving soil and water. We will assume therefore (and we can only hope that it is not a false assumption) that hand in hand with forest reservation will go a programme for improving hill agriculture in order to conserve our priceless assets of soil and water.

Bearing that in mind, how have the Forest Reserves in Jamaica been selected? The first step has been to make a very careful inspection of all Crown Lands in the Island: these amount to about 256,000 acres scattered in hundreds of places in every parish in the country.

For purposes of protection (i.e. water supplies, prevention of erosion, etc.) the forests of Jamaica fall naturally into two main heads:

- (a) forests lying in the older geological formations in the Blue Mountains, Bull Head Mountains and westwards to the Black Grounds of Trelawny. On these formations forests are necessary to prevent erosion of the steep hillsides.
- (b) forests lying on the white limestone: on the limestone the protective value of forest is slight and reserves need only be maintained on land unsuitable for agriculture.

Blue Mountains. The area of Crown Land in the Blue Mountains and John Crow Mountains is approximately 81,000 acres, the bulk of which lies in the inaccessible Portland area and on the honeycomb rock of the John Crows. There are, however, thousands of acres below 3,000' altitude in the main River valleys of Portland, which have been excluded from reservation and will, therefore, be available for agricultural development. On the St. Thomas side, the mountains have been cleared far higher up and all the remaining Crown Land has been reserved, except for certain areas between Bath and Trinity Ville which may possibly be excluded from the Reserve. Even here we have to remember that the catchment area for the new Morant Bay water supply will need protection. In the John Crow Mountains only the land too poor for agriculture will be permanently reserved.

Kingston Water Supply. When we come into the hills of St. Andrew, onto the headwaters of the Hope, Mammee, Ginger and Wag Water Rivers, there immediately arises a problem of urgent importance—water for the growing city of Kingston. It is only by forest conservation that we can maintain and improve both the quantity and quality of our water supplies. In these valleys all land in public ownership has been consolidated into Forest Reserves, all Crown Lands, War

Department lands, Corporation and Water Commission lands. In addition lands in private hands are being acquired, evicted tenants are being settled outside the catchments and thousands of young timber trees are being planted in the place of transitory tenants' crops.

The Central Area. The rolling hills and uplands from Upper St. Catherine, Bull Head in Upper Clarendon, Manchester and on to the Black Grounds of Trelawny is perhaps the most flagrantly denuded stretch of country in Jamaica. The only available Crown Lands are about 700 acres on Bull Head, where in addition a certain amount of land has recently been acquired. Apart from this, it will be necessary gradually to lay out and acquire a series of small protective reserves throughout the whole area, to try and stem the ever-increasing loss of soil and water. Coupled with this will be a re-afforestation programme, partly on the Reserves and partly through distribution to private persons. Arrangements have now been made in collaboration with the Jamaica Agricultural Society to maintain timber tree nurseries near Linstead and Albert Town and at Christiana and Grove Place. Shortage of staff and funds have so far precluded the possibility of any large scale attempt to tackle the problem, but it forms the major project on our future programme.

The limestone areas. We have already seen that once we get on to the white limestone areas, there is no justification for reserving solely for timber production, lands which can be profitably developed for agriculture. All reservations made on these areas are therefore provisional and are mainly designed to gain control over illicit timber cutting, squatting and encroachment. The reserves falling into this category are—

Cockpit Country	...	...	51,000 acres
Dry Harbour Mountains (East)	...	...	12,500 "
Dry Harbour Mountains (West)	...	...	14,200 "
Ruthven	...	...	1,300 "
Shuna	...	...	1,350 "
Discovery	...	...	600 "
Kelleys	...	...	1,500 "
Ballintoy	...	...	3,000 "
St. Faith	...	...	700 "
Dolphin Head	...	...	300 "
Camperdown	...	...	1,600 "

In addition to the above there are areas definitely reserved as forest on the Land Settlements at Burnt Savanna (97 acres) and Charlton (150 acres).

The Reserves at Portland Ridge (7,700 acres) and Healthshire Hills (19,000 acres) are honeycomb rock areas with low rainfall and completely unsuited for any form of agriculture, but may in time be developed for timber production. The same may be said of lands in public ownership from Long Mountain to the Cane River where it is believed that surveys will reveal 4,000—5,000 acres of land available for reservation.

Hugela Salad Dressing.

To four or five tablespoons of olive oil or some other vegetable oil, add two teaspoons of lemon juice, one teaspoon of raw sugar and a pinch of salt. Mix thoroughly.

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THE WOODPLOT ON THE HOLDING.

The woodplot is such a necessity on the holding that if this is not already established when an individual settles on the land, he should straightway make it his business to establish one.

In this short article I am not dealing with large timber trees, though of course these should not be left out, especially if the holding is large enough to take them,—the more of these planted the better. I really refer to quick growing trees which can be useful around the home in the thousand and one things which crop up where yam sticks, rails, posts and wattles are used.

I think that the smallholder in particular is indeed at a disadvantage if he is not able to cut a few sticks off his own place when he needs them.

Of course, there is the practice of getting supplies off other people's places, with permission sometimes, but this is not desirable and should not be possible where holdings are acquired under the Land Settlement Scheme now under consideration, and each settler will have to provide for his own requirements. In other countries there are trees planted which after a time serve as small woodplots in themselves, as when grown to a certain stage they are cut back 10' or 12' from the ground. This causes them to develop a goodly number of new branches and these in time serve as posts, rails, etc., when grown to the required size.

These trees are termed "pollards" and the Ash is one of those most suitable for the purpose as it readily sends out new branches when the old ones are taken off.

We have trees in Jamaica which, if treated in the same way, can help us as the Ash, etc., help people in the North.

To name only two Jamaican trees which can serve as pollards, I will mention the Cassia Siamca and Brazil Thorn, as they spring up again quite quickly and develop useful rails, yam sticks, etc., but we must plant these trees—make a business of it—and not merely leave things to chance and hope for the best. If one is really in earnest, the matter of getting seeds and seedlings is not a difficult business; they can be obtained from the Department of Agriculture, the Forestry Department and through the Secretary of the Jamaica Agricultural Society, and very often a live man can obtain his requirements right in his own neighbourhood or through the local Agricultural Instructor.

One of the most useful additions to a holding is a "root" of bamboos, yet so few think of planting one. Bamboos give rails of all kinds and are used for a great number of purposes; they furnish poles for radios, buoys for fisherman's "pots"—as a matter of fact they are plaited to make these "pots"—baskets, etc. Really, the uses of bamboos are too numerous to mention—in truth, a "root" of bamboos is a woodplot in itself.

Each district has its own variety of woods which can be planted with the certainty that they will grow into useful trees, so that none need be afraid to plant.

Speaking of yam sticks, I must mention the one par excellence used in St. Elizabeth and South Manchester; this is called "Wyaka" in the former place and "soap wood" in the latter. These do not grow very tall but are almost indestructible as they last from year to year, the cultivators using them for crop after crop.

P. ST. L. BACQUE.

BUILDING MATERIALS IN CONNECTION WITH TERMITES.

*Extract from lecture delivered by W. H. EDWARDS, D.I.C., F.R.E.S.,
Government Entomologist.*

AS has already been pointed out, control of termites and of wood rot is facilitated by the judicious use of chemicals, i.e., insecticides and wood preservatives, but it has also been stressed that more economic and lasting results may be obtained by proper methods of construction and by suitable structural devices which are essential in countries where termites have to be reckoned with.

It has been described how the foundations of buildings should be planned and what precautions should be taken to prevent the destructive organisms which live in the soil from reaching the superstructures.

As not only the methods of utilizing materials for construction but also the nature of those materials are of great importance, it will be opportune if I submitted now a few remarks about the more important points with regard to the building materials usually employed in Jamaica—these being: imported soft woods, native hardwoods and concrete.

Imported Lumber.

Termites feed mainly on cellulose, and it is consequently found that the *sapwood* of native hard woods is readily destroyed, whilst the heartwood of susceptible kinds of soft woods when it contains resins repulsive to insects is rarely attacked.

Observations made in Jamaica in houses built many years ago and also in recently constructed buildings, have proved that whilst lumber as imported now-a-days and which contain much sapwood and no resins is completely destroyed within a few years, lumber made from the same kind of trees but as obtainable in the past when it contained much heartwood impregnated with resins, have withstood successfully all the attacks of our local species of termites for as long as 25 years, though no preservatives had been used or special measures taken to prevent such lumber from being attacked by termites.

The durability of such lumber was due to its intrinsic qualities. This has now changed completely.

Soft wood lumber imported into Jamaica comes mainly from two regions, namely, the Southern Pine Region of the United States and Western Canada.

Any lumber received from the Southern States is sold locally under the trade name of Pitchpine, the term pitchpine covering the three species of southern pine, i.e., long leaf, short leaf, and loblolly pine. Though the other varieties are advantageously used for definite purposes, long leaf is generally considered elsewhere as being more satisfactory for general building purposes.

Under the S.P.A. (Southern Pine Association) rules, lumber is sold in the U.S.A. under definite grades, segregation being made according to the purpose for which the material is intended and best suited.

In Jamaica no judicious discrimination of any kind is ever made with regard to quality of lumber for special purposes and grading is made locally by lumber merchants on the appearance of the units and according to the demand of the market.

PLATE 2

A row of stables showing defective and illogical methods of construction.

It will be observed that the lower ends of the boards *a.a* of all the partitions between the boxes have been unnecessarily made to touch the surface of the ground which is merely covered with a layer of rough concrete.

The concrete being constantly wet and covered with straw the lower part of the partition absorbs moisture and rot rapidly. Ground inhabiting termites ascending through cracks in the concrete and through the boards have infested the building, which will be completely destroyed within a relatively short time.

It would have been easy to construct the partitions so as to leave a clearance of at least six inches between the surface of the floors and the lower butts of the boards, and easier still to fix the boards horizontally and with sufficient clearance between them to avoid small fissures between each unit as such retain humidity and also afford ideal places for dry wood termites to enter into and destroy the boards.



The Result of Defective Methods of Construction.

These photographs have been taken in a large building.

They represent the lower part of a series of columns supporting the roof of an open verandah.

The lower butt of each column is cast into a concrete block without any precautions having been taken to protect the most vulnerable part of the wooden units i.e., the butt ends, against termites or against humidity.

Fig. 1A shows where the concrete and the wood have parted leaving a fissure in which rain water seeps constantly.

Fig. 1B shows the result after a few years.



FIG. 1 B

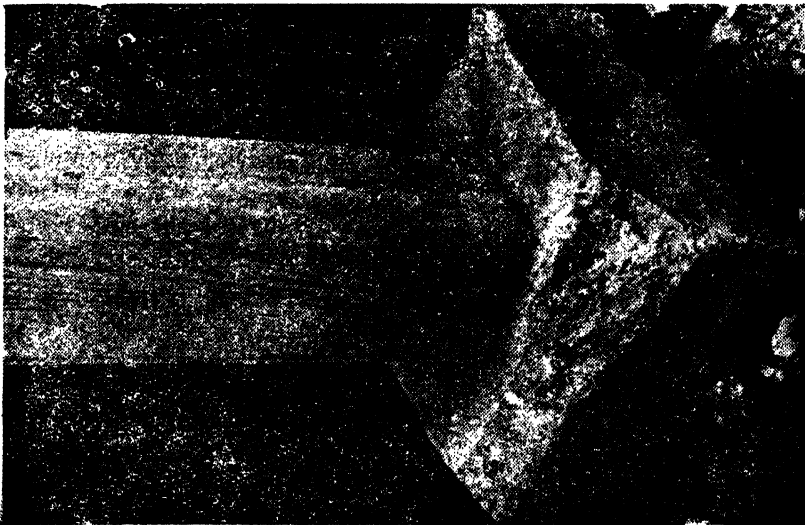


FIG. 1 A

It appears that lumber in Jamaica is simply graded as No. 1, 2, and 3, according to the cracks and number of knots in the units. This rough and illogical method of grading is due to the fact that in the colonies we do not know how to discriminate between quality and types of lumber for special purposes.

From Western Canada three kinds of wood are imported: Douglas Fir, Western Red Cedar and White Pine.

I understand that in Canada lumber is carefully graded under the control of the independent Pacific Lumber Inspection Bureau; grading being also conducted there so as to segregate the various products according to their adaptability for the purpose for which they are intended in construction. Grading is controlled by the Bureau Inspector and each shipment should be covered by a grading certificate issued by the Bureau.

For the lumber imported into Jamaica we do not ask for any grading at all and not even the name of the exporting firm is marked on the units. We consequently receive lumber of any kind; as the reputation of individual exporters is not at stake they have little incentive to give good qualities.

We have good reasons for believing that the exporters themselves consider that the lumber sent to Jamaica since several years has been of very low grade and that the better grades have not been asked for.

You have realised that the system of grading practised for Southern pines and also in Canada is conducted according to their suitability for certain requirements and not according to their durability under conditions existing in the tropics where resistance to termites should be considered of primary importance. In Canada a unit from the heartwood and containing much resins which would make it highly resistant to termites would if it has knots, air cracks, or other defects be classed as No. 3 common, whilst a unit with much sapwood but with beautiful veins and figures may be valued at a higher price and used for panelling, etc.

We do not import sufficient quantities of lumber to impose the system of grading we would like to see adopted for the tropics, but if lumber was graded by standard methods, local builders would have some reliable data to acquire experience and be able to discriminate. In the present chaotic state of that aspect of the lumber trade in Jamaica the quality of wood sold under one grade varies from week to week and it is impossible to advise what to use unless one selected the lumber oneself and unit by unit.

So far as imported lumber is concerned, it is therefore recommended that since there are three species of southern pines, every unit originating from the southern states should be clearly stencilled to indicate the species and the grade whilst lumber from Western Canada should be grade-marked and every shipment covered by a grading certificate from the Pacific Lumber Inspection Bureau.

We have reasons for believing that the exporters would be only too glad to have this done for the Jamaica trade and that marking and grading would be done without extra cost.

Native Hardwood Lumber.

The heartwood of our native hardwoods are relatively immune to the attack of termites and highly resistant to decay. Native hardwood lumber has occasionally been found to be attacked by termites, but this has only occurred when improperly seasoned lumber had been subjected to very unfavourable conditions.

The method of preparing the units and of utilizing them is of *great importance* not so much with regard to the durability of the hardwood units themselves but with regard to the soft-wood lumber which comes in contact with the hardwood units.

Piles and Posts.

Fermenting sap in recently cut logs attract ambrosia beetles and other wood borers. The lesions made in the bark and into the sapwood by those insects favour the retention of humidity and the growth of fungi which cause decay.

Though the heartwood of native hardwood timber is highly resistant to the attacks of those organisms, their bark and susceptible sapwood harbour pests and act as channels through which humidity, fungi and termites can easily ascend from the ground. It thus happens frequently that superstructures made with susceptible lumber become infected through the hardwood piles on which they rest.

A mechanical barrier, such as a metal capping, shaped as a termite shield and covering the upper end of piles would stop the ascent of termites and of humidity, but as an extra precaution and also to prolong the durability of the heartwood it is always advisable to remove the bark and when possible the sapwood of logs as they are felled and to air dry the heartwood as rapidly as possible by exposure to the sun.

The practice of *charring* the ends of piles to be buried in the soil is *not recommended*, as unless the wood is perfectly dry, heat causes checking and cracks which favour the ascent of insects and fungi through the piles.

Setting Timber in the Soil.

After piles have been dried and framed, it is advisable to immerse them completely or at least the end which will be sunk into the ground, in a mixture of crude creosote and coal tar in equal proportions or in a mixture of 1 part of creosote and the same quantity of gas oil or crank-case oil. Before the earth is rammed around the piles a quart of the same creosote crank-case oil mixture can be poured into the holes around the piles.

Where leaching is not excessive, 1 lb. of Arsenite of Soda placed beneath the piles will act as an excellent preservative, the wood absorbing the insecticide slowly in the same way as the wick of a lamp draws oil.

It is a common practice to fill the holes in which poles or posts are installed with stones rather than soil. There is no good reason for doing this; as the stones do not make close contact with the entire surface of the wood, they do not give a firmer stand and the voids between them provide better opportunity for ventilation and retention of moisture, conditions which favour decay and termites.

It can be easily observed that timber set in this fashion show maximum deterioration farther below the surface of the ground than those set in firmly packed soil free of debris.

Concrete is also often cast in the holes or on the ground around posts as in illustration I. This is done either to add to the stability of the timber by increasing the effective bearing area or with the intention of retarding decay at ground level. Because concrete is not moisture proof and because rain water running along the posts seeps through the crack which always develops between the concrete and the posts, this method is not effective.



FIG: 1.

Showing faulty work in setting posts or poles in concrete.

To obtain good results when concrete is used, it is necessary to pour some concrete into the holes before the posts are set and to cast concrete all around immediately afterwards in such a way that the wood will be completely surrounded by a solid concrete block. The surface of the concrete block should then be shaped so as to form a cup in which fuel or crank-case oil can be poured when necessity arises.

Hardwood sills and other framed lumber.

As already mentioned whilst the heartwood of native hardwoods can for practical purposes be considered as immune to decay and to the attacks of termites, their sapwood are readily attacked and harbour destructive organisms. When streaks of sapwood are left in hardwood scantling, termites often travel along the streaks of hardwood sills, sleepers, uprights, etc., to infest floorings and the higher parts of buildings where cheaper susceptible woods are generally used.

When native hardwood is employed it should therefore be ascertained that only well-seasoned heartwood without streaks of sapwood is used.

Further Recommendations on the Selection and Storage of Lumber.

As I have explained whatever its kind or origin, the quality of lumber is of great importance with regard to its susceptibility to termites or decay. Improperly seasoned lumber, such as occurs when wood has been rapidly and superficially dried, contains in the interior a considerable amount of moisture which slowly but gradually permeates to the exterior and makes the wood very susceptible to infestation. Attention should therefore be given to the proper seasoning of our native hardwoods.

With regard to lumber imported into Jamaica, wood-rot and infestation by wood termites commonly starts in lumber yards where board, scantlings, green timber, etc., are carelessly stacked together on the ground, or under leaking sheds. We advise builders to pay particular attention to the selection of what they purchase. All pieces with discoloured streaks or other signs of incipient infestation should be rigorously rejected.

Ready made door and window frames should also be carefully examined as these are frequently infested by termites creeping into the fissures where the units are joined to each other. Infestation of new lumber also occurs frequently when, pending utilization, it is stacked on the ground near the building site, or piled over decaying rafters.

Storing new lumber under the floors of old buildings or in dilapidated and leaking outbuildings and usually in close proximity to decaying vegetable debris is also a frequent cause of damage.

Builders are therefore advised first to choose the lumber they buy with great care, secondly to store it under proper conditions until it is used.

(To be Continued.)

TOMATOES.

Tomatoes will give a bigger yield if the growing point is removed above the fourth truss and the top resultant side-shoot grown on instead, others being removed when less than an inch long.

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THE ESTABLISHMENT AND DISTRIBUTION OF NEW SUGAR CANE VARIETIES.

BY

H. H. CROUCHER, *Agricultural Chemist,*

AND

M. S. GOODMAN, *Superintendent Sugar Cane Experiments.*

THE following resolution on the subject of the distribution of new sugar cane varieties was passed recently at a meeting of the Jamaica Agricultural Society—

"Whereas due to the steady march of Panama Disease and the incidence of Leaf Spot, the Sugar Industry has become increasingly important to Jamaica, and
"Whereas, through the competition of other sugar producing countries coupled
"with the depressed condition of foreign markets, it is necessary to have the
"greatest efficiency in field and factory,

"BE IT RESOLVED that Government be asked to consider the advisability of
"establishing through the Department of Science and Agriculture experiment and/or
"breeding stations in different parts of the Colony for the purpose of procuring
"the best cane in tonnage and sucrose content to be distributed to planters."

The wording of the resolution indicates that the members of the Jamaica Agricultural Society are not fully aware of the difficulties and dangers attendant on the introduction on a commercial scale of new cane varieties into a country already producing sugar cane. The method of introducing new cane varieties into any country is a matter requiring careful study, and the object of this memorandum is to set out and explain the methods and precautions which are taken to help and protect both the small cultivators and the large estate owners.

When the introduction of new sugar cane varieties is contemplated, it is first necessary to ascertain that any new varieties are likely to be at least equal in value to those already in use. The assessment of the value of a cane however requires a considerable time as the quality of a cane variety cannot be judged only on the basis of the yield of the first plant crop but depends on a number of factors, e.g., ratooning powers over a series of years, sucrose content of the juice, resistance to diseases and pests, many of which can be evaluated only by chemical tests and by careful observation over a period of several years. Furthermore, the effect of these factors may vary with the local conditions under which the cane is grown. The distribution of untried varieties which later proved unsatisfactory, would have most undesirable results. Firstly, the farmer might be involved in considerable financial loss if his crops failed. Secondly, the distribution of a variety particularly susceptible to a disease or pest could result in building up a concentration of infection which might seriously affect less susceptible varieties already in general use. An example of this is described in a later paragraph. Thirdly, while many planters and farmers may at present proclaim that they are prepared to take the risks described above, any such occurrence would reflect seriously on the Department and at the same time result in considerable injury to the industry.

In order to avoid the possibilities referred to above, the accepted stages in the introduction of new varieties into Jamaica are as follows:—Firstly, the cuttings received from the Quarantine Station in Trinidad are propagated under carefully controlled conditions. When

possible, their behaviour towards disease and pests is watched in this stage and those which show great susceptibility are discarded. Secondly, the new variety is tested under field conditions, and its general behaviour, its ratooning ability and its sugar producing qualities recorded and compared with standard varieties which have already been proved satisfactory. The test is performed by establishing carefully planned experimental plots at various centres in the Island immediately sufficient planting material is available from the first nursery. These experiments are undertaken in co-operation with the estates. Facilities for the supervision of these experimental plots have been very inadequate to meet the needs of the Island but in the estimates recently approved by the Legislative Council, provision has been made for the appointment of an additional Field Officer detailed specially for this work. In spite of the present limitations, 12 variety experiments distributed in six of the sugar producing parishes of the Island are in operation. Eight of these experimental plots have been reaped in the past few months. A report on such experiments is issued annually and the current one is now in the course of preparation. In view of the limited facilities available, the Sugar Advisory Board (not the Sugar Control Board) made a suggestion which has been adopted by the Department that small amounts of planting material of the more promising varieties should be issued to selected estates in each of the main sugar producing districts. The planters in charge of the estates undertake to report to the Department on the properties of the varieties and to make available to the Department planting material as required. The planting material issued both for the planned experiments and to selected estates and the material produced both from the issues remain the property of the Department. The issues are not made for the benefit of the individual estates but to obtain information for general use.

The necessity for the experimental stage has been already demonstrated since the British West Indies Central Cane Breeding Station commenced operations by the behaviour in Jamaica of the variety B.726. This variety was highly recommended from Barbados on the results obtained from it there, and was distributed in Jamaica before adequate experiments had been concluded. A number of estates planted considerable areas on the basis of these recommendations and its appearance. The variety under Jamaican conditions failed completely except in two very limited areas, and involved the estates concerned in considerable financial loss. While the estates could withstand such a loss and turn to areas of other varieties to maintain supplies, the small cultivator would not have been so well placed and a year's expenditure and income would have been lost to him.

The third stage follows when a variety has passed through the experimental stage described and has proven itself suitable for general planting in one or more of the cane areas. The variety is then propagated for distribution and tops are issued free of cost, as soon as sufficient are available, to any cane grower or small cultivator who may apply, subject to his planting in an area suitable for the particular variety. It is agreed that the centres and nurseries for the propagation and distribution of the approved varieties are insufficient and not widely distributed throughout the Island. The absence of facilities for the proper supervision of widely distributed nurseries has been the main factor limiting their number. It is hoped that if the proposals for the establishment of district and departmental experimental stations are adopted, they may also be used as distributing

centres for cane varieties, possibly supplemented by subsidiary nurseries in adjacent districts under the control of the District Officer.

Both planters and small cultivators do not appear to be fully aware of the functions of field nurseries. They tend to regard the Department as a source of planting material for normal planting material operations. It is not the function of the Department of Agriculture to undertake to supply material for this purpose. Estates and small cultivators should maintain their own nurseries and use departmental nurseries only for providing the initial stock of varieties which they have not available. The Jamaica Agricultural Society can do useful work in encouraging their members and others to establish these individual nurseries. The Society might commence their own nurseries for distribution of varieties approved by the Department.

It is essential for the Department to retain control of the distribution of new varieties and to ensure that only approved varieties are distributed. For example, one of the main conditions in Jamaica is the susceptibility of cane to mosaic disease. Only varieties having some resistance to the disease can be grown successfully and should be distributed. Distribution of highly susceptible varieties might result in the re-infection of partially susceptible varieties, such as BH 10/12, the most valuable variety in Jamaica, which, in many areas, has been freed from mosaic disease after detailed work and high expense spread over a number of years. While estates having experience of the disease are prepared to undertake severe control measures and are thus able to grow varieties of some degree of susceptibility, the average small cane cultivator is not at present prepared to make the sacrifice which such control measures involve and allows his fields to become a source of infection for others. It is therefore part of the policy of the Department to distribute to small cultivators only those varieties which are highly resistant to mosaic disease.

The resolution suggests that cane breeding stations as well as experimental stations should be established by the Department. The work of breeding and selecting new varieties under modern conditions involves the maintenance of a specially qualified staff with ample facilities. Climatic conditions in Jamaica are not suitable for breeding cane varieties. The breeding for the British West Indies is centred in Barbados where a trained staff is available and conditions are ideal. The officers of the Central Cane Breeding Station are in frequent communication with the officers of this department and are kept fully informed of the requirements of Jamaica in regard to the new varieties, an Officer of the Breeding Stations visiting Jamaica at regular intervals to study Jamaican conditions and requirements.

Cane experiments of the type already referred to are under local conditions best conducted in co-operation with estates and the planting on the proposed district stations of the Department would be used only for the propagation and distribution of approved cane varieties.

It is believed that the Department of Agriculture can perform its function satisfactorily and can be of full use to the industry only if the policy now adopted and outlined in the preceding paragraphs is adhered to. The Department is prepared to give every possible assistance to the small cultivator in regard to improving his yield of cane and sugar, but, as has already been stated, it is necessary to control variety distribution for his own protection, and the Department would be failing in its duty to the industry if, under present conditions, it did not work on the lines indicated in this memorandum.

Banana Leaf Spot Control.

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REARING THE CALF—(contd.).

AFTER the preliminary difficulties have been overcome the calf should be fed at regular intervals two or three times daily with whole milk until it is at least two weeks old. By this time four to five quarts per day should be fed.

Heifer calves which are being reared for the dairy should at this stage be distinctly marked, either by tattooing inside the ears or snicking the ears as explained in the article on this subject published by Mr. J. W. Howe, *vide* Journal February, 1939, page 104.

Rearing calves on whole milk entirely is expensive business and should only be done under special circumstances such as in cases where the milk cannot be sold or where very valuable pedigree stock have to be reared.

In the case of valuable pedigree calves, however, it is better and safer to foster-mother them, i.e., suckling them on cows which are not high producing, or which have calved bull calves. These bull calves, being of low value, should be destroyed immediately and good cow calves put on to the cow.

It takes time and patience to get a cow to adopt a calf, but with a little persistence she will soon begin to lick the calf and once this has been done, the cow should be kept under control while the calf has a first drink. This should be repeated two or three times and soon the cow will take to the calf naturally. However valuable the milk might be it is essential that whole milk be used during the first few weeks of the life of the calf. Any attempt to replace whole milk by unsuitable foods or to give an insufficient quantity, results in stunted and unthrifty calves with little or no resistance to disease.

After the first three weeks and where butter is made, separated milk should then be added to the whole milk to make up the quantity; i.e., about $\frac{1}{3}$ of the milk should be separated milk, and $\frac{2}{3}$ whole milk.

After the fourth week the proportion should be reduced to $\frac{1}{4}$ and $\frac{3}{4}$ and the calf kept on this ration for another week or so; after this the change over to separated milk entirely should take place. It should be borne in mind that separated milk is milk from which the fat has been extracted, and if this be fed straight to calves the ration will be deficient. The fat deficiency should therefore be made up by adding blood meal to the separated milk.

Blood meal is sold by the Society at 3½d. per pound. About a teaspoonful should be added to each ration of separated milk so that the calf would consume about 2 ounces of blood meal mixed in with the separated milk each day.

Where separated milk is not available skim-milk powder should be bought and diluted by using hot water at the rate of one pound of skim-milk powder to 4 quarts of hot water. The blood meal should then be added to this ration. Skim-milk powder is sold at the Society's office at the rate of 6d. per pound. This ration will cost with the value of the blood meal added, about 1½d. per quart and should be used as a substitute for whole milk where the latter is more valuable.

In buying milk powder care should be exercised to ensure that the supply has come from an accredited farm; i.e., a farm where the herd has been tested by Government Officers for various forms of diseases such as, tuberculosis, Johnne's disease, contagious abortion and so on.

Cheap milk powder is on the market, but this should not be used for feeding calves.

By this time the calf will be picking grass and a calf-meal should be fed, beginning at about the fourth week and feeding a quarter pound daily; the fifth week $\frac{1}{2}$ lb. daily, sixth week $\frac{3}{4}$ lb. daily, and by the time the calf is two months old it should be consuming one pound of calf meal per day. Calf meal is also sold by the Society at 3d. per pound.

The ration set out appears to be costly, but if the calf is to grow into a thrifty heifer and milk well it will be well worth the expense.

The routine for feeding a calf may be summarised as follows:—

First Week: Its own dam's warm milk three times a day beginning with about one quart and increasing to $1\frac{1}{2}$ quarts at each feed by the third day.

Second Week: $1\frac{1}{2}$ quarts warm milk, not necessarily its own dam's, three times a day.

Third Week: Two pints of whole milk plus two pints of skim milk or separated milk with half pint of linseed porridge or half tablespoonful of Cod Liver Oil or teaspoonful of Blood Meal three times a day.

Fifth Week to Eighth Week: Two quarts of warm skim milk with increased supplies of either linseed porridge, Cod Liver Oil or Blood Meal three times a day, plus calf meal.

Ninth Week: Omit mid-day meal and increase ration of Calf Meal and other concentrates.

Fourteenth to Sixteenth Week: Calf may now be put out to grass, but a morning hand feed of skim milk, plus concentrates should be given.

It is important that the animal be hand fed after weaning and almost up to breeding time, as it is during this period that animals lose ground and become a drag on the Dairy. If they are not fed at this period they cease to grow and begin to lay on fat. The result of this is that when they arrive at the age to be bred they are so fat that they refuse to get in calf.

A. T.

JUVENILE AGRICULTURAL SHOW, MANCHIONEAL.

THIS Branch held its first Show on the 24th May, 1939, on the school grounds which were suitably arranged and decorated for the occasion. Exhibits of Handicrafts were housed in the schoolroom.

Some of the classes represented were, Agricultural Products, a variety of animals, Prepared Foodstuffs, e.g. cakes, beer, jellies, marmalades, starches, etc., Sewing and general handicrafts.

All the exhibits were of a high standard.

The judges included ladies from the Port Antonio Branch of the Women's League, the Supervisor of Agricultural Training, the Supervisor of Instructors, Agricultural Instructors and some Agriculturists.

After the judging the show was formally opened at 1.00 p.m. by the Hon. B. H. Easter, Director of Education. Mr. F. M. Jones, J.P., presided over the function.

Speakers included the Director of Education, Mr. A. P. Hanson, Mr. Foster of the Dint Hill Training Centre and Miss Gideon.

The value of Agricultural Training and Domestic Science was stressed.

A vote of thanks was accorded the speakers.

The visitors then inspected the exhibits and made many purchases.

The provision of music for the occasion added to the attractiveness of the exhibition.

Parties from nine schools attended the Show and special mention must be made of Rural Hill School, Mt. Pleasant School, Fruitful Vale School and the Nonsuch Juvenile Branch. The first two above-named captured prizes for exhibits in the Agricultural and Handicraft sections.

MACCA TREE JUVENILE VEGETABLE GROWING COMPETITION.

THE Macca Tree Annual Juvenile Vegetable growing competition for 1939 has once more been very successful.

There were six classes each with approximately thirty competitors each of which established an individual plot. Each plot was very smartly and artistically laid out, nicely fenced with wattled bamboo and sticks, and had an attractive gate.

The beds were bordered with white-washed stones, and embraced a system of terracing on the contour of the hill sides with a head trench and occasionally a second relieving trench. The soil was well prepared and manured with organic manures and some wood ash thrown in; in many instances a little artificial manure was added. Beans, peas, cabbages, carrots, cauliflower, corn, cucumbers, egg plants, kohlrabi, lettuce, melon, mustard, okra, onion, parsley, pepper, Irish potatoes, sweet potatoes, spinach, tomato, turnips, beet root, etc., were grown.

The technique in the growing of the several varieties of crops has been wonderfully improved, while the controlling of pests, establishing permanent crops, budding, grafting, forking, mulching, trenching, manuring, have all been maintained. More extensive use of artificial manures has been carried out with marked success.

A high standard of efficiency was displayed by all competitors. Keen interest was exhibited in the display of Agricultural tools and small stock.

The keen interest and co-operation afforded us during the judging by parents and guardians was very encouraging.

Mr. T. N. Golding, Headmaster of the school is to be congratulated on the success of this competition under his direction.

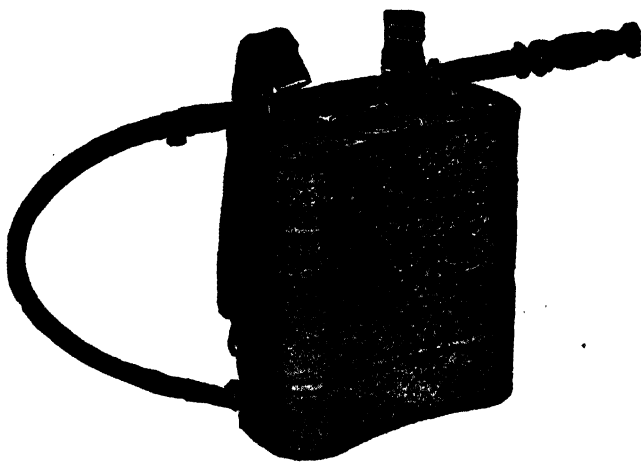
The following is the list of prize winners :—

Class A. Boys out of School	{ George Watt	
	1st	{ Erdial Fowler
	2nd	Altamont Thomas
	3rd	Charles Halstead.
Class B. Girls out of School	1st	Jane Johnson
	2nd	Wilhel Johnson
	3rd	Adella Harris
Class C. Senior Boys in School	1st	Collin Halstead
	2nd	James Hayles
	3rd	Arthur Thomas
Class D. Senior Girls in School	1st	Rosette Thomas
	2nd	Lillithe Warmington
	3rd	Kathleen Hayles
Class E. Junior Boys in School	1st	Augustus Johnson
	2nd	Melbourne Sewil
	3rd	Louis Spencer.
Class F. Junior Girls in School	1st	Alice Harris
	2nd	Ruthel Ferguson
	3rd	Florence Green.

Feeding Honey to Cows.

In a recent report Mr. R. Baker (Dairy Adviser on Eyre Peninsula) states: "An illustration of the value of feeding low-grade honey to dairy cattle is amply demonstrated on the property of Mr. C. B. Pope, of Pearlah. With the drying off of clover pastures it becomes necessary to feed some supplementary food in an attempt to arrest a more or less rapid decline in the milk yield. Feeding **oaten chaff** did not show any great improvement. By damping the chaff with diluted honey **remarkable results were obtained, and not only has the decline been arrested, but cows have responded with an increased yield.** Approximately one-third of a pound is being fed per cow per day.

TO FIGHT BANANA
LEAF SPOT DISEASE
ARMSTRONG STANDARD SPRAY PUMP
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SUPPLY OF TANNING MATERIALS IN JAMAICA.

By C. SWABEY, Forest Officer.

Imports of Leather.—The following leather goods were imported into Jamaica in 1936 and 1937:

	Value £	
	1936	1937
Boots, Shoes, etc., of leather	115,672	163,902
Saddlery and harness	3,983	4,239
Dressed and undressed leather	4,115	3,030
Other leather manufactures	6,638	5,188
	£130,408	£176,359

At the same time tanning materials to the value of £1,254 were imported in 1936 and £3,143 in 1937.

Exports of hides.—Exports for the same years were as follows:

	1936		1937	
	No.	Value £	No.	Value £
Hides of cattle	21,547	11,322	24,807	17,627
Goatskins	231,551	20,811	183,042	22,109
TOTAL		£32,133		£39,736

Divi-divi to the value of £812 was exported in 1936, and £1,083 in 1937.

Local tanneries.—At the request of the Forest Branch, the Secretary, Jamaica Agricultural Society, called for reports from Instructors on tanneries in their districts. Returns were received from the following parishes, the number in brackets representing the number of tanneries: St. Andrew (7), St. Thomas (nil), Portland (1), Western St. Ann (5), Eastern St. Ann (10), Hanover (2), St. Catherine (2), Clarendon (nil). This list is probably far from complete. Many of the country tanneries use primitive methods and produce poor leathers although at least one tanner is producing really first-class leather.

Materials used.—The tan barks in most general use are:

Mangrove (*Rhizophora mangle*)

Broadleaf (*Terminalia latifolia*)

Mahogany (*Swietenia mahagoni*)

Divi-divi pods (*Coriaria caesalpinia*)

In addition the use of the following barks has been noted:

Tamarind (*Pithecolobium arboreum*)

Shadbark (*Pithecolobium alexandri*)

Locust (*Hymenaea courbaril*)

Almond (*Terminalia catappa*)

Mangrove though it has a high tannin content, ranging from 22%—33%, has a tendency to produce a harsh, red, brittle leather and for this reason it is undesirable to use it alone.

Broadleaf bark has a very low tannin content and its use should be discouraged. The barking of economic timber trees, often of small size, is a very unsatisfactory feature of this trade. These remarks

apply with even greater force to mahogany, the bark of which is used for colouring. The number of immature trees of these species which may be found both on private and Crown Lands with their bark stripped off and either dead or dying is very distressing.

Divi-divi pods are only used in mixture with other tans.

Apart from locally produced tanning materials, a certain amount of quebracho and oak bark extract is imported, together with chemical and synthetic tans.

Conclusions.

1. Considerable quantities of tanned leathers are imported and untanned leathers exported.
2. Leathers tanned with local materials are often unsatisfactory.
3. Many economic trees are barked and killed for tans.
4. Tanning materials are imported from abroad.
5. There is, therefore, scope for production of better tanning materials within the Island.

Recommendations.

1. *Analyses of tan barks.* The Imperial Institute has agreed to undertake the analyses of tan barks submitted. They require for each sample 7 lbs. of thoroughly air-dried bark, selected at random from normal commercial supplies: such data are necessary to show the low tannin content of local materials. It is suggested that the following species be analysed:

Mangrove

Broadleaf

Mahogany

Acacia dealbata (from the Blue Mts.)

2. *Legislation.* Efforts should be made to enforce the sale of the Bark of Trees Law of 1929, and its provisions should be strengthened.

3. *Growing of Wattle.* There appears to be ample scope for the growing of trees producing tans of good quality and high yield: the green and black Wattles of South Africa (*Acacia molissima* and *A. decurrens*) probably produce the best and most valuable vegetable tans on the market to-day and the demand exceeds supplies. Wattle growing in South Africa and Australia forms an important and valuable industry.

Seed of these species has recently been imported and trials are to be made in the Blue Mountains. It appears unlikely that the trees are likely to thrive at any altitude under 4,000 feet and experimental planting will be therefore confined to these regions.

A limited amount of seed is available for distribution and applications may be made to the Forest Officer, Hope, who can also give advice as regards seed treatment, planting distances, etc.

SCALE INSECTS ON BANANAS.

Extract from Report by Government Entomologist.

"The Scale Insect found on the banana leaves submitted is *Chrysomphalus aonidum*.

Small outbreaks of these pests sometimes occur, but as natural enemies (Lady Bird Beetles) soon reproduce themselves in great numbers where such occur, the pest usually does little damage when control is applied as follows:—

Leaves which are heavily infested should be cut and stacked at a distance of at least 25 feet from the nearest banana plant; under such conditions the young (crawler stage) which are born from the adult scale on those leaves, cannot crawl back to infest new leaves of the bananas whilst the natural enemies which breed in the material fly back to the fields to destroy the scales which were left on the younger leaves."

PERENOX—Use and Storage.

By W. V. BLEWETT, *Technical Director of Plant Protection Ltd.*

PERENOX must on no account be exposed to the air any more than can be avoided. When drums are opened to take out part of their contents, the drum lids must be promptly replaced and the drum left securely closed. If this is not done then a chemical change takes place in the Perenox which decreases its efficiency on the leaf. Perenox when sprayed on to leaves gives an even cover of very small particles and a chemical change slowly takes place. This change on the leaf is essential for the effective control of plant diseases. What must be avoided is the change referred to taking place in the drums and this can be avoided by keeping drums securely closed after they have been opened up to take out part of the contents.

When a small quantity is taken from a Perenox drum, unless it is to be made up into a spray immediately, it should be placed in an airtight tin or bottle and these should be kept closed until the material is to be used.

Perenox which has been properly stored disperses perfectly in water and this is essential if it is to give the planter the best results.

Some Notes on "Perenox" in connection with Banana Leaf Spot Disease.

Preparation of the Spray. The Spray should be prepared by sprinkling the required amount of "Perenox" over the surface of the water and then stirring. Do not mix the powder first with a small quantity of water.

Storage Properties. "Perenox" can be stored for long periods even though the drum in which it is contained has been long opened, provided it is kept in a dry place and the lid is replaced.

Quantities for making up a spray. The strength of the spray to be used (i.e., its copper concentration) depends very largely on the virulence of the attack of the disease. However, experiments conducted by officials of the Jamaica Department of Agriculture on the control of *Cercospora Musa* (Banana Leaf Spot or Sigatoka disease) have shown that "Perenox" used at three-eighths the copper concentration of the Standard Bordeaux Mixture (4:4:40) has given an equally effective and frequently a better control than Bordeaux Mixture.

A table is attached on which is shown the quantities of materials required to make up a standard Bordeaux Mixture (4:4:40) in 40, 50, and 100 and 250 gallon lots and the copper concentration obtained. Similar details are given below this in respect of "Perenox" at the following copper concentrations:—

- (1) $\frac{1}{2}$ the copper concentration of Bordeaux 4:4:40
- (2) $\frac{3}{8}$ " " " " " "
- (3) $\frac{1}{4}$ " " " " " "

Saving effected by the use of "Perenox." It is to be noted that Copper Sulphate Crystals as used in Bordeaux Mixture contain 25% Copper as compared with 50% Copper in the case of "Perenox." Assuming, therefore, that "Perenox" is to be used at half the copper concentration of Bordeaux Mixture, 1 ton of "Perenox" would be the equivalent of 4 tons of Copper Sulphate Crystals. Furthermore as 4 tons of Copper Sulphate Crystals require 4 tons of Hydrated Lime to make up Bordeaux Mixture, at the indicated concentration 1 ton of

"Perenox" would be used instead of a total of 8 tons of Copper Sulphate and Hydrated Lime, thus cutting down cartage and handling expenses very considerably. In cases where "Perenox" can be used at three-eighths the copper concentration of standard Bordeaux or lower, then the saving is even greater.

Cost. The present cost of "Perenox" c.i.f. Kingston in 56 lb. drums is £82 10/- per ton of 2,240 lbs. or slightly under 9d. per lb. Until the recent rise in the price of Copper the cost of "Perenox" was £79. per ton.

TOMATO PROJECT: SOUTHERN MANCHESTER

By H. A. DARBY—Agricultural Instructor.

IN the early part of 1936 Tomato growing was introduced into Southern Manchester and a start was made with 45 growers to produce tomatoes for the 1937-38 crop. Though all growers were inexperienced the project was very successful.

In 1938 plans were made to grow tomatoes on an extensive scale for the 1938-39 crop and due to new arrangements which were made by the person to whom the 1937-38 crop was sold, contact was made with the Development and Marketing Officer of the Department of Agriculture who kindly agreed to handle the crop. (1938-39).

The crop is now completely reaped and has proved another successful project, in spite of the severe drought which Southern Manchester passed through. For the 1938-39 crop there were 207 growers who took up a total area of 60 odd acres and of this number only 45 growers had any previous experience in growing tomatoes.

The growing of tomatoes was spread over many districts and took in the following: Port Mahone, Plowden, New Broughton, Wigton, Lottery, Cross Keys, Wind Hill, Rose Hill, Rose Corner, Wellington, Redstone, Cocoa Walk, etc.

Seeds were distributed during the 2nd week of September and by a system of relay planting the crop was kept going from the 1st week of January to the 3rd week of May.

During the months of September to May regular attention had to be paid to the tomato fields but owing to the very limited staff to overtake such extensive field operations we were at a loss at many times to cope with the demand for instruction and demonstration and but for the sincere co-operation and willingness of the growers to act on the advice given and to help themselves, such excellent results could not be recorded.

The following plot taken at random gives an idea of the money returns.

A plot of 1½ chains square showed a cash sale of	...	£11 10 0
less cost of manure and other expenses	...	3 10 0

leaving a net return of	£ 8 0 0
-------------------------	-----	-----	---------

to the grower.

This is not an average return, but there are many more plots which have done equally well. A fair average return per chain square is between £3 and £3 10/- or £30 to £35 per acre.

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54 KING STREET.

The prospects for the 1939-40 crop are unusually good as a very large number of persons have expressed their desire to plant and if this is to be taken as an indication and a forecast be made therefrom, one would be led to believe that the area to be taken up for the 1939-40 crop will be much over 100 acres.

The co-operation of the officers of the Marketing Division at Williamsfield has been splendid. These officers assisted in the selection and took care of the marketing of the tomatoes. Selecting tomatoes has been exacting work keeping all officers steadily at work from 8 a.m. until at times, 9 p.m., with just an interval for lunch; and that happened very often twice per week.

I wish to record my appreciation of the co-operation and assistance of the officers of the Marketing Division, the Agricultural Headman and the tomato growers. Each in their way assisted ably. It is hoped that the foundation has been laid for a more prosperous Southern Manchester by the development of this new crop.

BETTER BEE-KEEPING.

The first law of sting-avoidance in bee-keeping is to keep only good-tempered bees. If you come into possession of a vicious stock, lose no time in exchanging the queen for one of gentle disposition. Then, in a few weeks' time, the last of the old truculent race will have disappeared, and anything you have to do among the hives will have to be done in peace.

But you must know one or two things about bee-control before you will be able, as is frequently the case with the old experienced hand at the craft, to pass a whole season without more than a solitary sting or two.

Gloves are Taboo.

Never wear gloves; gloves of any kind merely serve to upset the mildest-mannered bees and are, moreover, a preventive of deft handling. But before proceeding to manipulate a stock anoint your hands and wrists with a little common vinegar.

A veil should be worn habitually, but only as protection from a possible sting in the eyes, and it should be made from the finest black silk chiffon obtainable, which is practically imperceptible, and forgotten after the first two minutes' wearing.

The proper way to subdue bees is first to send a couple of good puffs from the smoker into the flight-hole of the hive, then to wait not less than two minutes. This is needed to give the alarmed bees time to gorge themselves with food.

Then begin to peel back the cloth quilts from one corner of the square of frame-tops above, gently wafting a little smoke down among the bees as the crowded interior of the hive comes into view.

This properly done, scarce a bee should rise on the wing, but the whole company settle down to peaceful compliance with whatever treatment their owner may have in store for them.

LIVESTOCK IN THE WEST INDIES.

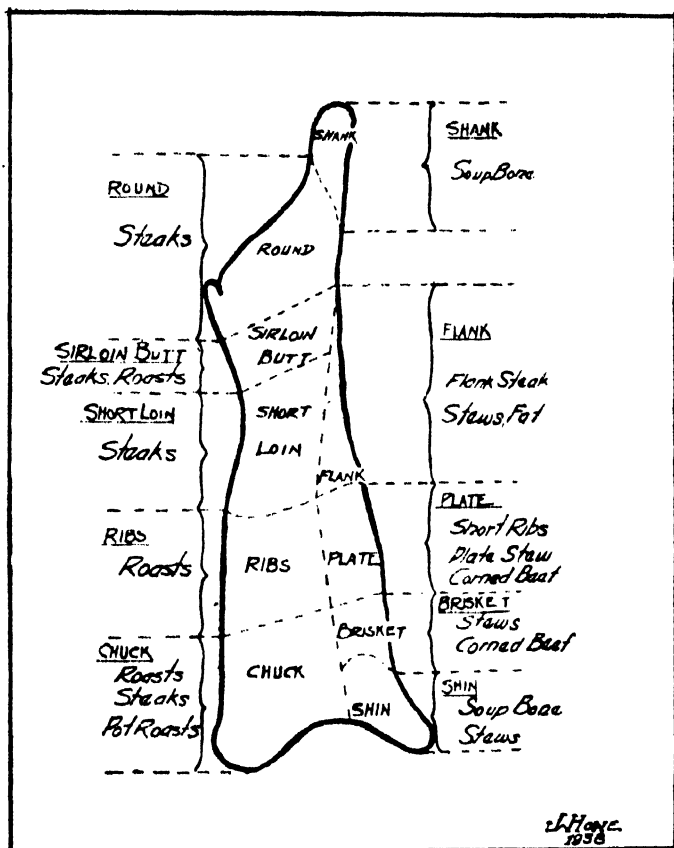
By J. W. Howe, Dip. Ag., B.S.A., M.Sc., Headmaster Government Farm School, Superintendent Government Stock Farm.

(Continued.)

CHAPTER IX.**JUDGING BEEF CATTLE.**

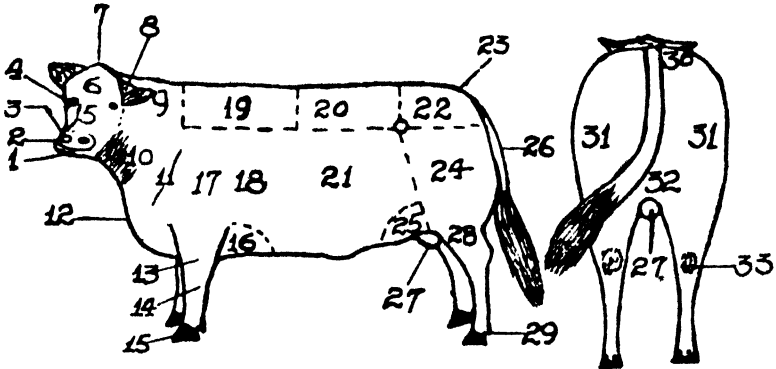
Cattle of the beef type are raised primarily for the beef or meat they produce, and milking qualities are a secondary consideration. Consequently little attention is paid to the ability of the beef cow to give milk, and as long as she is capable of producing a sufficient amount of milk to properly raise her calf, that is all that is required.

Name and location of points of the beef animal.



Points of the Beef Steer.

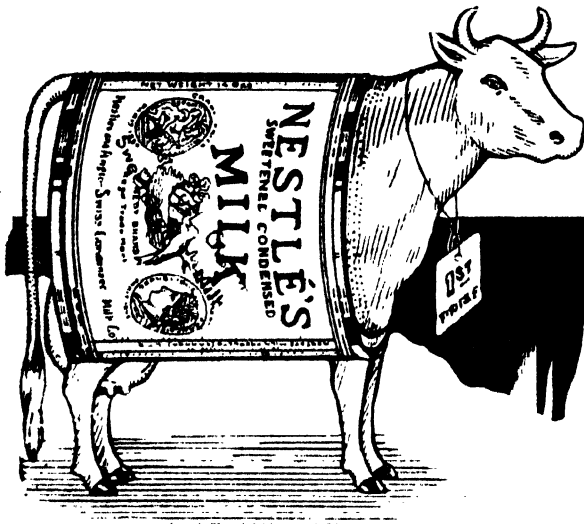
- | | |
|-------------------|----------------|
| 1. Mouth | 18. Fore ribs |
| 2. Muzzle | 19. Back |
| 3. Nostril | 20. Loin |
| 4. Eye | 21. Ribs |
| 5. Face | 22. Rump |
| 6. Forehead | 23. Tail head |
| 7. Poll | 24. Thigh |
| 8. Ear | 25. Hind flank |
| 9. Crest | 26. Tail |
| 10. Neck | 27. Cod |
| 11. Shoulder rein | 28. Hock |
| 12. Dewlap | 29. Dewclaw |
| 13. Elbow | 30. Tail head |
| 14. Shank | 31. Thighs |
| 15. Foot | 32. Twist |
| 16. Fore flank | 33. Hock |
| 17. Shoulder | |



Where

SCORE CARD FOR BEEF CATTLE OR STEER.

Scale of Points.	Standard or Perfect Score.	Score of Animal Studied.
1. GENERAL APPEARANCE, 38 Points		
Weight, score according to age.		
At 12 months 850 lbs., at		
24 months, 1,250 lbs., at		
30 months, 1,500 lbs. . .	8	.....
Form, broad, deep, compact, low set,		
top and underline straight . .	10	.....
Quality, fine bone, mellow, elastic		
hide, soft and silky hair . .	10	.....
Condition, deep, even covering of		
smooth firm flesh, the cod and		
flank indicating finish . .	10
2. HEAD AND NECK, 7 Points.		
Muzzle, broad, mouth large, nostrils		
large	1



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SCORE CARD FOR BEEF CATTLE OR STEER, *contd.*

Scale of Points.	Standard or Perfect Score.	Score of Animal Studied.
Eyes, large and bright, with placid expression	1	.....
Face, short, wide, slightly dished; cheeks fleshy; jaw strong	1	.....
Forehead, broad, full	1	.....
Ears, medium size, not coarse, well set	1	.....
Neck, thick, short, throat clean, blending well with shoulders	2	.....
3. FOREQUARTERS, 9 Points.		
Shoulder vein, full and smooth	2	.....
Shoulders, well set, compact on top, smoothly covered with flesh	3	.....
Breast, wide and full, brisket extending forward, with little dewlap	2	.....
Legs, straight, short; arm full; shank fine, smooth; toes pointing directly forward	2	.....
4. BODY, 31 Points.		
Chest, deep, wide, girth large, crops full	5	.....
Back, broad, level, thickly and smoothly fleshed	8	.....
Loin, broad, thick	8	.....
Ribs, long, well arched, thickly and smoothly fleshed	8	.....
Flanks, deep, full, underline straight from front to rear	2	.....
5. HINDQUARTERS, 15 Points.		
Hips, smoothly covered not wide apart nor prominent	1	.....
Rump, long, wide, level, free of patchiness, tail-head smooth	4	.....
Thighs, thick, broad, deep, full	4	.....
Twist, deep, full	4	.....
Legs, well placed, short, hocks straight; shank, fine and smooth, toes pointing straight ahead	2	.....
Total Points	100	

General Characteristics of the Beef Type.—

General Appearance—In outline the beef animal should present a low-set blocky appearance, and should not in any way show angularity. From the side view the animal should be rectangular, the top line and the bottom line should be parallel. The body should be deep and compact, showing ample width and depth over all parts.

The Head—The head of the beef animal should be short and broad, with a broad muzzle and width between the eyes. If the animal is of a horned breed, the horns should be fine and strong.

(To be continued.)

COMPOSITION OF COWS MILK.

The average composition of cow's milk is as follows:—

Water	...	87.40	per cent.
Fat	...	3.75	" "
Milk Sugar	...	4.70	" "
Casein	...	3.00	" "
Albumen	...	0.40	" "
Ash	...	0.75	" "

The milk sugar, casein, albumen and ash values are usually added together and are referred to as Solids—not Fat.

The minimum legal standard for Fat in Milk in Jamaica is 3.4 per cent., and the legal minimum standard for Solids—not Fat—is 8.25 per cent. The vendor of any milk which on analysis is found to contain less than 3.4% of Fat or less than 8.25% of Solids-not-Fat is liable to prosecution and fine.

The "Ash" of milk consists chiefly of phosphates of calcium, sodium, potassium and magnesium, together with chlorides of these metals.

Milk is fairly rich in Vitamins, containing A, B₁, B₂, C, D, and E.

W. L. BARNETT,

REPORT WHITE YAM COMPETITION—CLARENDON.

WE beg to present our Second Annual Report of the Clarendon White Yam Competition.

Forty-one competitors entered this year as compared with twenty-six in the previous year; four of these, however, withdrew, their yams having died down prematurely. Several others got very poor results from no other apparent cause than "Burnt Heads" and a fungus disease locally known as "White Ants."

The winner of last year's competition produced 331½ lb. from his twelve hills, of one head each. The winner of this year's competition has produced 884½ lb. from a similar number of heads, an excess of of 553 lb. over last year's.

Remarks.

Marked improvement has been observed in the methods of cultivation and in the use of fertilizers and manures. Interest evinced has been so great that we think the scope of the competition should be enlarged and if possible be made an island-wide affair. We arrive at this conclusion as a result of enquiries received from all over the Island for White Yam heads and for information regarding the cultivation of the same.

A noteworthy feature during the judging was the anxiety displayed by competitors, many accompanying us from field to field to see the methods used and results obtained by others.

It is pleasing to note that all prize winners used both organic manures and fertilizers in quantities more or less proportionate. In one instance one of the competitors used 1½ lb. of fish manure on one hill which produced 90½ lb. and the best yield obtained from any other hill, in the same plot, on which only ¾ lb. of the same manure had been used was 40 lb. There is, however, much more to be desired as to the knowledge of the use of fertilizers for this particular crop, seeing that a uniform yield has not yet been obtained. Experiments, however, are still being carried out by us with a view to arriving at the proper fertilizers and the quantities to be used on the different soil types.

In our report on the previous competition we suggested that pamphlets on the methods of the cultivation of this crop should be printed and circulated and we still feel that much useful knowledge could be quickly disseminated in this way, at little cost, thus preventing prospective growers losing time and money carrying out their own experiments. We further suggest that an adequate supply of White Yam Heads be purchased and stored by the Jamaica Agricultural Society for sale during the planting season. Our reason for this suggestion is that people desirous of growing this crop in their anxiety to start, purchase "Burnt Heads" which we observed either die down prematurely or give poor results. This invariably disheartens a beginner.

Further reference as to cultural methods can be found in the September issue of the Journal of 1938. We desire to record our thanks to Mr. W. Hyde Macaulay, of Spaldings, for the use of his scale for the past two seasons with which the weighing of the yams was done.

Below we record the names of the competitors and the results obtained by each one:

NAME	ADDRESS	WEIGHT
Ivan Ascott	Spaldings	884½ lb.
Elkanor Jackson	Alston	537 "
William Johnson	"	495½ "
Lewis White	Spaldings	456½ "
Thomas Bloomfield	Alston	452½ "
Edward Duckett	Chapelton	443½ "
George Nelson	Alston	441 "
J. Alderdyce	"	423½ "
David Smith	"	411½ "
Thomas Harris	Spaldings	406½ "
T. N. Wilson	Moravia	401½ "
Fred Blake	Alston	323 "
J. K. Pennant	Thompson Town	311½ "
Paul McKenzie	Crofts Hill	310 "
Uriah C. Williams	Richmond Park	295 "
Panton Miller	Alston	279½ "
Leslie Walters	Alston	277½ "
Mrs. Beatrice Miller	"	260 "
Leslie Graham	"	247 "
Balister White	Spaldings	232 "
Alex. Baer	Crofts Hill	191½ "
Rufus Pitterson	Victoria	191 "
H. H. Jackson	Kellits	188 "
Joseph Baer	Crofts Hill	182 "
J. M. Christian	Brandon Hill	181½ "
Chas. Ellis	Victoria	172 "
Felix White	Spaldings	170 "
Ed. Richards	"	167 "
Rev. C. T. Johnson	Crofts Hill	166 "
Dan. Fergusson	Alston	164½ "
Sylvester Grant	"	145½ "
Mrs. Eliza Thompson	Victoria	133½ "
Ed. Samuda	Alston	125½ "
Arthur Blair	"	123½ "
Gilford Fagan	Victoria	100 "
Clarence Bridge	Top Hill	Disqualified
Dan. Fagan	Victoria	" "

(Sgd) M. N. THOMPSON. }
 " J. A. GRAHAM. } Ag'l Instructors.
 " A. L. VIRTUE. }

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DISEASES OF RABBITS—(contd.).

STRANGLES. When a rabbit has strangles, abscesses develop in its lower jaw. The abscesses may be big or small, firm to the touch, and show little tendency to burst. They should be opened with a clean, sharp knife, which has been disinfected, and the pus removed. The inner surfaces of the wounds should then be swabbed with a suitable disinfectant. While they are healing, they should be washed out or irrigated with mild antiseptics by using a syringe.

Another disease which involves a number of abscesses about the size of walnuts is common to rabbits. These swellings appear on various parts of the bodies, but are most common about the head and neck. They show little tendency to come to a head and when they are ruptured, healing is slow and uncertain. The rabbits become weak and emaciated and on occasions develop pneumonia or pleurisy. No treatment for this disease has proved satisfactory and diseased animals should be immediately separated from others.

EAR CANKER. The inside of the ear is invaded by small parasites which set up irritation by their movements and excretions. Excretions gather around the drum of the ear and may be plainly seen as a greyish brown mass. The parasite which causes this disease is similar to the mange parasite.

Symptoms. The rabbit frequently shakes its head, flaps its ears and tries to scratch the ear with its hind feet. If the parasites penetrate into the middle ear, the rabbit will hold its head continuously on one side. Mature animals continue to eat well, but lose flesh and eventually die from convulsions.

Treatment. The disease is contagious and all contaminated hutches should be thoroughly cleansed and disinfected and any material from sick rabbits collected and burnt. Failing this, the disease will recur despite treatment. The ear should be cleansed with hydrogen peroxide and all loose scabs removed. Oil may be used to soften these scabs.

- (1) Olive oil 20 parts, carbolic acid one part; Apply daily until cured, or
- (2) Iodine one part, ether 10 parts, olive oil 20 parts. Saturate a piece of cotton well in the mixture and apply it with a piece of stick to affected parts. Repeat the treatment in a week if necessary.

MANGE. This is a contagious disease. Mites burrow into the skin and interfere with its tissues. This causes the skin to exude stuff which remains on the body forming scabs, setting up this irritation. The animal scratches these scabs which break into open sores. The disease appears first about the nose and mouth and tends to spread along the chin, up the forehead to the ears and to the legs. The fur comes out and greyish yellow crusts appear. If not checked, the disease may be fatal.

Early detection of the disease is important if animals are to be saved. They should be isolated in a previously disinfected hutch, and those in contact carefully watched. The fur may then be clipped from the affected area or over the whole body, the crusts removed with warm soap and water and one of the following preparations rubbed in every five days after the animals have been re-washed.

- (i) One part sulphur, one part lard;
- (ii) Sulphur one part, Iodine one part, oil of tar one part, olive oil eight parts.

Attendants' hands should be disinfected as some forms of mange produce mild infection in man.

A. T.

OBSERVATIONS ON THE PRUNING OF FRUIT TREES.

By C. S. BYLES, Agricultural Instructor.

THE art of pruning trees appears to be very elementary indeed; the operation is usually carried out by our small farmers as part of their routine work; a cutlass plays a very important part, and it is very remarkable how efficient this popular tool accomplishes the job.

I recently observed some splendid work in the pruning of citrus, cocoa and coffee. The actual surgery was very good, and there could be no question about it the trees were *pruned* and the owner felt very proud. Observations disclosed however, that the gentleman had mixed up very fatally the general principles which apply to the various crops.

In the case of his grapefruit trees he had removed all the inside branches, the very branches which produce fruit. Cocoa trees had been rid of the old wood leaving only the young gormandizers, while in the case of the coffee trees, he had removed all the young material leaving the old wood.

Pruning is very elementary but can prove very costly.

There can be no hard and fast rule in the pruning of fruit trees. Each type of fruit tree has its own little peculiar principle, and therefore pruning requires discretion, coupled with experience, observation and a knowledge of what is required.

There are instances when size rather than quantity is the pruner's objective. Pruning for shape and beauty rather than for fruitfulness is always more ornamental than useful.

It is necessary that agriculturists should have a general knowledge of the system of pruning in order that they may be able to improve their trees, and increase the fruitfulness of them. When a branch of a tree is cut off, much of the sap or nourishment that would have been used by it goes to the branches that remain, and more especially to those in the vicinity of the part taken away. Besides, by removing useless branches, or as it is called "thinning them out" more air and light are allowed to reach the remaining portions of the plant, and thus their assimilation of food from the atmosphere is increased.

In pruning so as to increase fruitfulness, it is necessary to observe, first of all, on what portion of the tree the fruit is borne. In some plants it is borne by the wood of the same season's growth, in others by the wood of the stem or the mature branches. In the first instance it will be necessary to prune out branches that are backward in growth, and that have little or no fresh wood on them. In the second instance the young wood must be cut back so as to allow the strength of the plant to be put forth in pushing out flowers instead of continuing to increase the new wood. And in the third case, the small branches and young wood not required to increase the spread of the tree should be taken off. In all cases, however, suckers or gormandizers as they are called, must be removed from trees, (unless they are required to balance the tree) as they will rob the plant of much of the food required for fruiting.

Pruning does not mean simply chopping at a tree with a cutlass so as to decrease its bulk, but it means an important operation that should not be undertaken without forethought, or without some knowledge of its principles. Branches should be cut off close to the

stem, with a clean cut, and the cut surface painted with tar or some such substance to prevent decay.

The proper time for pruning is during the dormant or rest period. Trees should not be pruned when they are full of sap as they will "bleed." Full advantage should also be taken to correct all errors, and to carry out cultural improvements, thus affording trees an opportunity of recovering before they are called upon to produce fruit for the coming season.

POULTRY NOTES.

Fowl Paralysis.

FOWL paralysis is difficult to spot because other paralytic symptoms are common in chickens. Paralysis may, however, be known from the fact that the disease gradually gets worse and worse with no indication of recovery. The disease occurs along with other diseases with the result that losses are heavier. It occurs mainly in oldish birds, i.e., between six months and one year old. Younger birds have been known to get paralysis, but the incidence of the disease is less. Chiefly it is introduced by bringing in fowls from farms where the disease is known to exist.

Up to this the cause of the disease has not been definitely known and there is no proof that it is infectious or will spread naturally in a flock. As, however, the disease frequently occurs in the progeny of certain birds of a flock there is strong evidence that it might be inherited. Fowl paralysis does not affect all birds in the same manner and the symptoms will vary according to the tissues which are involved. Lameness may affect one or both limbs. It usually starts by the bird having a jerky walk, followed by inability to use the limb, with a clutching appearance of the claw. When cases are advanced the birds are unable to move and lie in a helpless condition with one leg stretched in front and the other stretched behind. Later on the wings droop and the neck shows a tendency to twist. The bird still retains a lively condition and if fed will live for a few weeks.

Some birds develop digestive troubles and have swollen crops; some may go blind, the iris developing a greyish colour and losing the power to expand and contract although loss of the power of the iris is not always due to fowl paralysis.

There is no treatment for fowl paralysis, but the disease may be controlled and prevented. There is no known method of detecting characteristic symptoms, but all weakly or mal-formed birds should be culled and all suspected birds, i.e., birds that do not walk or use their feet normally should be fattened. Care should be exercised in selection of eggs for hatching so that eggs from a strain that is paralytic be not used. Proper feeding is presumed to be of help and young birds for breeding should be given a liberal supply of green food. As is usual with all diseases, thorough disinfection of all pens and houses, where sick birds have been kept, should be undertaken.

A. T.

French Dressing.

4 tablespoons wholesome salad oil; 2 tablespoons lemon juice; a pinch of salt.

The proportions of lemon juice and oil may be varied according to the ingredients of the salad and individual taste. Mix oil and salt by means of an egg beater or power whipper and slowly add lemon juice.

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Cocoa:	Ordinary	17/6 " "
	Estates fertd.	17/6 " "
Coffee:	Good ordinary	28/- " "
	Fine Ordinary	30/- " "
	Manchester "B"	30/- " "
	Manchester "A"	32/- " "
Goat Skins:	Well cured, sound quality, free from holes	1/1 ¹ / ₂ d. per lb. dlvd. Kgn.
Honey:	Water White	3/- delivered Kingston
	Pale Amber	2/6 " "
	Light Amber	2/3 " "
	Dark Amber	2/- " "
Kola Nuts:	Well cured, sound quality,	10/- " "
Lime Juice:	Good, fresh, green, top-pulp	1/- per gall.
Orange Oil:	Sound quality—well filtered	
	Sweet and Bitter	4/3 per lb. dlvd. Kgn.
Sarsaparilla:	Well cured, red roots	35/- dlvd. Kgn. nett wts.
Wax:	Pure clear quality	10d. per lb. dlvd. Kgn.

THE FARROWING SOW.*

WHILE "in pig" the sow should be given as much freedom as possible, for activity promotes health and good digestion, to the advantage of the sow and its prospective litter.

Her food should not be stinted, but she should be kept in moderate condition. Sows which are too fat at farrowing will probably have trouble in delivery, and may also suffer from many other troubles, of which milk fever is only one. On the other hand, if the sow is kept too short of food she cannot nourish the young pigs properly while carrying them, nor can she suckle them properly when born.

At the time of farrowing, a close watch should be kept by the usual attendant—strangers upset the sow—who should not interfere unless there is evidence of trouble in parturition or the sow attempts to bite her young. This sometimes happens when some of the pigs remain to be born and one of those already dropped tries to get to the teats; especially if it squeals, the sow—usually a young one—will seize the piglet in her mouth and quickly squeeze the life out of it. Should she break the skin and taste blood, she may turn on the rest of the litter and eat them. The attendant can prevent this by taking each piglet as it is dropped and putting it aside in a straw-lined box until all are born, when they may be put on to the teats and all will be well.

For the first two weeks after farrowing the sow does not require more food than she received during the last two weeks of pregnancy, but after this the supply should be gradually increased as she requires it.

There is nothing commoner than deficiency diseases in young pigs caused by the absence of the requisite amount of mineral matter in the food. Mineral matter is contained in fish meal, while cod liver oil, with its essential vitamins, stands pre-eminent as a constituent in the food of young pigs. One teaspoonful of cod liver oil twice a day is sufficient for pigs up to ten weeks old.

Draughts, dampness, and uncleanness, as well as unsuitable food for the mother, will cause scouring, which may lead to death.

Given reasonable care and attention, no trouble should arise, and this little extra care means the difference between a strong, healthy litter and a few stunted, unthrifty runts.

*W. DIXON. *Queensland Agricultural Journal*, April, 1939.

BRANCH NOTES.

CLARENDON: Alston; Moravia P.O. Meeting held 6.4.39. Present: 15 members, 3 visitors, and Instructor J. A. Graham. The visitors were enrolled as members. Delegates to the Parochial Board were asked to report. They assured the meeting that members of the Board were in sympathy with their requests. Roads and Water Supply were the chief matters discussed. The President, Mr. Geo. Nelson, agreed to get fertilizers from Kingston for members. Orders aggregating 300 lb. were given. The price of ginger was discussed. Election of officers: President, Mr. Geo. Nelson; 1st Vice-President, Mr. E. Wray; 2nd Vice-President, Mr. E. Jackson; 3rd Vice-President, Mr. F. Blake; Secretary, Mr. T. N. Wilson; Asst. Secy., Mr. D. Ferguson; Treasurer, Mr. E. Jackson. A working committee was named. The Instructor in his address, recommended that the Branch procure a spray pump. The White Yam Competition had revealed the use of fertilizers and manures. Enquiries were made by the Instructor re service of the ram. The National Anthem was sung, and the meeting adjourned.

T. N. WILSON,
Secretary.

Beckford Kraal; Beckford Kraal P.O.—Meeting held 4.3.39. Present: the President, Mr. A. J. Smith; the Secretary; 12 members, 14 visitors, and the Instructor. Election of officers: Mr. C. Douglas, President; Messrs. E. Gordon and A. Stewart, Vice-Presidents. Authorized Persons reported. The meeting terminated.

J. A. SWEENEY,
Secretary.

Brandon Hill; Colonel's Ridge P.O.—Meeting held 17.4.39. Present: Instructor Thompson, Messrs. J. T. Brown, the new Headmaster of the school; T. N. Robotham, presiding; the Secretary and Asst. Secretary, 24 members and 3 visitors. Correspondence in connection with the Half-Yearly meeting of the C.B.A. was read. The Instructor submitted a list of prices offered by the Parent Society for certain Agricultural products, and urged members to make use of this opportunity. Eight Authorized Persons present reported "all correct." The Secretary read a concise and encouraging report of the year's work and the accounts, for which she was thanked. The Instructor expressed his appreciation of the manner in which the Branch had co-operated with him. Election of officers: The President, Secretary, and Asst. Secretary, re-elected; Mr. J. T. Brown, 1st Vice-President; Mr. J. N. Simpson, 2nd Vice-President; Mr. J. E. M. Small, 3rd Vice-President; Managing Committee: Mr. T. Matthews, chairman; the officers of the Branch, Messrs. J. Christian, B. Pincock, Misses M. B. Brooks and J. M. Binger. Three new members were enrolled. The meeting terminated with the singing of the National Anthem.

(Miss) **E. A. GRAHAM,**
Asst. Secretary.

Elgin: Thompson Town P.O.—Meeting held 26.4.39. Present: Mr. C. A. Johnson, Vice-President, in the chair; Instructor Thompson, 16 members and the Secretary. Correspondence was dealt with. The Instructor addressed the meeting on, (a) Leaf Spot Disease of Bananas; (b) Control of Black Ants; (c) Improvement of the local breed of pigs; (d) better cultural methods for vegetables and ground provisions; (e) Irish Potato cultivation. At the close of his address, a number of questions were asked, to which Mr. Thompson suitably replied. He was heartily thanked. Other matters dealt with were (a) a proposed agricultural outing to Hope Farm: plans for this were left to a committee; (b) the need for a pedigreed Boar. A small committee was appointed to deal with this matter. (c) Reports of Authorized Persons: One report was received from A. P. William Saunders. (d) Road and Water Supply. The Secretary was instructed to write to the Parochial Board reminding them of their decision to survey for a driving road into Elgin; and of their decision to send a deputation to the district to investigate the possibilities of protecting springs for water supply. The meeting ended.

T. A. HALL,
Secretary.

John Austin: Chapelton P.O.—Annual meeting held 24th April. Present: All the officers, the Instructor, a few members and a visitor, who subsequently became a member. The Secretary, President and Treasurer presented reports, which were adopted. Matters of water supply, road, and the purchase of a ram were dealt with. The Instructor addressed the meeting. The President was re-elected; the other officers were elected. A report of the meeting of the Clarendon Branches Associated was accepted. The singing of "The King" terminated the meeting.

A. E. NELSON,
Secretary.

Mt. Airey: Richmond Park P.O.—Annual meeting held 17.4.39. Present: All officers, Mr. A. L. Virtue, Instructor; Mr. H. G. Dunkley, J.P.; 45 members and a number of visitors. Chief items on Agenda: (1) Cabbage Com-

petition—on which Messrs. C. R. Brooks, H. Dawkins and A. Dawkins gave a report. Teacher Edwards and the Secretary promised donations for prizes. (2) Nomination of delegates to the C.B.A. meeting, Chapeltown. Messrs. R. Dawkins and H. Dawkins were nominated. (3) Recitation by Miss Iris Pryce and duet by Misses I. Griffin and Iris Pryce were appropriate and well received. They were heartily thanked. (4) President's address: This was well received. He was thanked. (5) Secretary's Report: This was of a high standard. (6) The Treasurer's report was taken. This was pleasing. (7) Election of officers: President, Mr. C. S. A. Edwards, re-elected; 1st Vice-President, Mr. R. Dawkins, re-elected; 2nd Vice-President, Mr. E. Francis; Treasurer, Mr. R. Dawkins, re-elected; Secretary, (Miss) M. E. A. Dawkins, re-elected; Asst. Secretary, Mr. Aldwyn Wilson. A committee was elected consisting of the officers together with Messrs. G. Donaldson, A. Dawkins, Miss M. Francis, Messrs. C. Wilson, H. Dawkins and C. R. Brooks. (8) Mr. Virtue's address: This took the form of a review of the year's work; and reference was made to (a) Land Settlement and achievements of the J. A. S. (b) The work of the 1st Vice-President, President, and Secretary during the year. (c) The Juvenile Branch and its progress. Members were congratulated for their interest and hard work. The Secretary spoke in glowing terms of the Instructor's work and worth. New members were enrolled. The meeting terminated.

(Miss) M. E. A. DAWKINS,

Secretary.

Pleasant Valley: May Pen P.O.—Annual meeting held 18.4.39. Present: Messrs. C. C. Flyter, President; C. O. Newman, 1st Vice-President; R. O. Terrier, Instructor Virtue, Mrs. A. A. Flyter, Secretary and Treasurer; 8 members, and visitors. A welcome was extended to Mr. Sullivan of the May Pen Court's Office. Correspondence: (1) Resolution asking for increased membership. Members promised to launch out and do their best. (2) Letter from the C.B.A. re Exhibition at next Half-Yearly Meeting. Mr. Jon. Grandison was appointed delegate to the meeting. (3) Letter from May Pen Citizens' Association asking for help towards the bust fund for Custos. Mr. R. O. Terrier delivered an eloquent speech re membership. Instructor Virtue lauded the work of the officers of the Branch. He explained the success of the deputation to Kingston re Land Settlement Scheme, which resulted in a visit of the members of the Board of Management to the Parish. The year's work was accounted for by the officers. Mr. C. C. Flyter was re-elected President: the 1st Vice-President, Secretary and Treasurer were re-elected. Roll Call was taken. The meeting terminated with "the King."

(Mrs.) A. A. FLYTER,

Secretary.

Red Hills, Crooked River P.O.—Annual meeting held 17.4.39. Members decided to hold a Social and Banquet on Monday, 1st May. It was agreed that a local Show should be staged on 1st August, 1939. Correspondence was read. Delegates were elected to attend the Half-Yearly Meeting of the C.B.A. Authorized Persons present gave their reports. Election of officers: Mr. W. A. James, President; Mr. Thos. Howel, 1st Vice-President; Mr. R. T. Brown, 2nd Vice-President; Mr. Wm. Griffiths, 3rd Vice-President; Mr. A. E. Mills, Secretary; Mr. Willy Mitchell, Asst. Secretary; Miss F. Peck, Treasurer, and Miss Z. Scarlett and Miss Straw, auditors. The officers addressed the house, promising to do their best for the improvement of the Branch. Roll Call showed 24 present. The meeting terminated.

A. E. MILLS, Secretary.

Rock: Osborne Store P.O.—Meeting held 26.4.39. Mr. V. A. McKenzie, President, welcomed the new teacher, Mr. H. D. Davidson. Correspondence re application for a subsidy for a buck was dealt with. Present: 29 members, Instructor Virtue and a few visitors. Election of officers: President, Mr. V. A. McKenzie, re-elected; 1st Vice-President, H. D. Coleman; 2nd Vice-President, T. C. Swainson; Secretary, Miss E. S. Bernard; Treasurer, Mr. L. Reid; Managing Committee—Messrs. Patterson, Blair, Morgan, Davidson, Blackstock and Mrs. Ferrero. After a very interesting and inspiring address by Mr. Virtue, the meeting was brought to a close by the singing of "the King."

E. S. BERNARD, Secretary.

Sunbury: Banana Ground P.O.—Meeting held 11.4.39. There were 9 members present. Mr. M. Donaldson, 2nd Vice-President, presided. Delegates were appointed to the meeting of the Clarendon Branches Associated. The Parochial Board was written to pointing out the need for a driving road between Balcarres and Thompson Town. Mr. Eric Ellington addressed the meeting. National Anthem.

R. A. PEART,
Secretary.

HANOVER: Cacoen; Riverside P.O.—Meeting held 20.4.39. Present: Messrs. C. A. Malcolm, President; R. A. Cadogan, 1st Vice-President; A. G. Durrant, 2nd Vice-President; E. L. Johnson, Secretary; Instructor Hastings, Miss M. C.

Dinham, Asst. and Reporting Secretary, 23 members and many visitors. The President, Secretary and Treasurer gave their reports of the past year's work. All the officers were re-elected. There was a heated discussion re Blenheim property for Land Settlement. It was decided to forward to the Land Commissioner a memorandum re this matter. The Doxology brought the meeting to a close.

E. L. JOHNSON,
Secretary.

Sandy Bay: Sandy Bay P.O.—Annual meeting held 4th April, 1939. Officers present: Messrs. W. H. deLisser, Honorary President; R. S. Brooks, President; A. H. Taylor, 2nd Vice-President; J. B. Lawrence, Secretary; and several other members and visitors. Reports were given by the Secretary and Treasurer. The office bearers of the past year were re-elected, with the exception of the 1st Vice-President. The meeting of the Hanover Branches Associated was discussed. The singing of the National Anthem brought the meeting to its close.

J. B. LAWRENCE,
Secretary.

MANCHESTER: Hatfield; Hatfield P.O.—Meeting held 26th April. There were in attendance nine members and the officers of the Branch. The Branch arranged to procure a Pruning Set. The President gave a well-balanced talk on the growing of vegetables. The need for an Authorized Person was stressed. The meeting was terminated by the singing of the National Anthem.

(Miss) G. E. BAILEY,
Secretary.

PORTLAND: Cooper's Hill; Fellowship P.O.—Annual meeting held 28.3.39. Present: Jos. Muiklejohn, President; Instructor G. R. Graham, the Secretary, many visitors and members. There was a discussion re the deviation of the road. The annual report showed improvement in the activities of the Branch. The Instructor in his address, congratulated the Branch. Election of officers resulted in the re-election of all those who had served during the past year. Messrs. Joseph and Chas. King were added to the Managing Committee. The Secretary was instructed to obtain information from the Parent Society re supplying food-stuffs to Government Institutions. The meeting ended with the singing of the National Anthem.

J. S. DAVIS,
Secretary.

Kensington: Manchioneal P.O.—Meeting held 18.4.39. Present: Messrs. W. Thomas, President; W. J. McKenzie, 1st Vice-President; S. Scott, Treasurer; 5 members, 3 visitors and the Secretary. The annual report was followed by the report of the Authorized Persons. Election of officers: W. J. McKenzie, Esq., 1st Vice-President; A. R. Hunter, Esq., 2nd Vice-President; T. C. Bryan, Esq., re-elected Secretary; Mrs. G. Amir, Assistant Secretary; S. Scott, Esq., Treasurer. The meeting was terminated by the singing of the National Anthem.

(Mrs.) GRACE AMIR,
Asst. Secretary.

Maidstone—Bourbon; St. Margaret's Bay P.O.—Annual meeting held 12.4.39. Present: Mr. N. V. Thompson, M.P.B., presiding; Mr. G. R. Graham, Instructor, the Secretary and 12 members. Letters from the Parent Society and the Parochial Board were read and noted. Election of officers: President, Mr. N. Vincent Thompson, B.A., M.P.B., (re-elected); 1st and 2nd Vice-Presidents, Messrs. C. L. E. Wilson and L. L. Williams, respectively; Secretary, Mr. I. E. Somers (re-elected); Asst. Secretary, Mr. W. L. Roper; Managing Committee: Messrs. Jasper Thompson, Justin Roper, C. Henderson, J. N. Linton, Isaac Bourne, Reuben Roberts, and the officers of the Branch. The Secretary's report was presented and adopted. The Treasurer's report, which showed a balance of £2 Os. 7d. was also adopted. It was decided that a Yampic Competition should be held. The meeting terminated with the singing of "The King."

I. E. SOMERS,
Secretary.

Rock Hall: St. Margaret's Bay P.O.—Meeting held 14.3.39. Present: 24 members, Instructor G. R. Graham, several visitors, the Secretary, and Mr. J. W. Dunn, senior Vice-President. The Secretary explained that resolutions passed at the last meeting had been forwarded to the proper authorities. Correspondence read included (1) Letter from the General Secretary re new list of members; (2) Letter from Lands Department re inspection of Mount Pleasant property; (3) Letter from Secretary Portland Branches Associated calling meeting of Managing Committee to deal with proposed Show for 1940. Members were urged to renew their subscriptions at an early date. Three authorized persons reported continued vigilance, but no arrests since last meeting. The Instructor based his remarks on observations made at holdings visited during the day. Several questions were asked respecting canes, pimento and fertiliser, all of which were satisfactorily

answered by the Instructor. Attention was called to the inadequate accommodation for beasts at the Port Antonio market. It was also pointed out that a shed was necessary to protect sugar sellers from sun and rain. It was decided that these matters should be brought to the notice of the Parochial Board. Further arrangements with regard to the finished portion of the road to Rock Hall were made. The Managing Committee decided to meet on the first Tuesday in April to make final arrangements. The working of the Government Savings Bank was explained by the Secretary. The meeting rose with the singing of the National Anthem.

E. V. METCALFE VAUGHAN,
Honorary Secretary.

ST. ANDREW : Content Gap; St. Peter's P.O.—Meeting held 18.3.39. Present : Mr. K. A. Clarke, President; 12 members, the Secretary and 8 members of the Juvenile Branch. There was a net profit of £6 10s. from the Picnic held during December. Mr. K. A. Clarke, President and organizer, was heartily congratulated. The amount realized is to be used for the erection of a community hall for the district. A report of the working of the Juvenile Branch was given. It was decided that the Secretary should communicate with the Secretary of the Parent Society asking for six dozen Plymouth Rock eggs in preparation for a chicken-rearing campaign. It was decided to write to the Land Settlement Commissioner re the purchase of Salt Hill for Land Settlement. Correspondence was read. The House stood for five minutes in memory of Mr. Chas. D. V. Henderson, late Instructor for the district. The meeting terminated with the singing of "the King."

L. A. WILSON,
Secretary.

ST. ANN : Epworth; Epworth P.O.—The annual meeting of this Branch was held on 1st April, 1939. Present : The Hon. Sir T. L. Roxburgh, C.M.G., President; ten other members and Instructor Atkinson. The Secretary's report which gave a resumé of the Branch's activities for the year, was read and adopted. The Treasurer's report showed a balance of 14/8½d. The Instructor and the President were thanked for their guidance and help during the year. Both replied, and promised to do all within their power for the well-being of the Branch. Election of officers : All officers were re-elected, while the Acting Secretary, Mr. G. V. Francis, was appointed Secretary. Ten members paid their fees. Efforts to augment the Branch's membership resulted in eleven new names being submitted. The National Anthem ended a bright meeting.

G. V. FRANCIS,
Secretary.

ST. ELIZABETH : Malvern; Malvern P.O.—Annual meeting held 24th March. Present : 18 members and Instructor Darby. The Secretary's and Treasurer's reports were read and adopted. The White Yam Competition was discussed. Several members told of the methods they employed, both in the preparation of the land and planting of the yams. It was suggested that there should be another competition. The National Anthem terminated the meeting.

(Miss) MYRTLE L. BENJAMIN,
Asst. Secretary.

Middle Quarters : Middle Quarters P.O.—Meeting held 6.4.39. The year closed with an increase in membership. Attendance throughout the year was satisfactory. Members had evinced a great deal of interest, and debates had been lively. The Instructor had attended many of the meetings and given valuable advice. The following gentlemen visited on invitation and gave addresses—Messrs. F. C. Tomlinson (Barrister), and C. B. Sangster, (lawyer). A district nurse had taken up residence during the course of the year. The Rice Growing Association had delivered 197 bushels of rice to the Parent Society. This had infused new life to the industry. The Parochial Board had arranged for a water supply.

J. N. MONTEITH,
Secretary.

Retirement : Maggoty P.O.—Meeting held March 24, 1939. Present : Rev. R. C. Gordon, President; Mrs. Celeste Clark, Treasurer; 14 members, a few visitors, and the Secretary. The following matters were dealt with : (1) Water Supply for the district. (2) Report of delegates to the meeting of the St. Elizabeth Branches Associated. (3) Appointment of an authorized person. Instructor Kelly gave a very useful address on the value of humus. This enjoyable meeting was closed with the singing of the National Anthem.

A. JOCE NELSON,
Secretary.

Siloah : Siloah P.O.—Annual meeting held 27.4.39. Present : 12 members and several visitors. Instructor Kelly was present and gave his usual interesting address. The retiring Secretary gave her report, which was well received. The Treasurer's report showed a balance of 15/2d. Mr. T. B. Logan, 1st Vice-President, presided. Officers elected : Mr. J. A. Reid, President; Mr. T. B. Logan, 1st Vice-President;

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Mr. C. Williams, 2nd Vice-President; Mrs. M. A. Reid, Secretary; Mrs. A. Sleight, Assistant Secretary; Mr. G. L. Robinson, Treasurer. A Managing Committee of the officers and Messrs. P. Foster, P. Bailey, John Rhoden, J. Ankle and A. Sleight was appointed. Messrs. J. A. Reid, T. B. Logan and C. Williams were appointed as delegates to attend a meeting of the St. Elizabeth Branches Associated. After fees had been collected, the meeting adjourned with the singing of the National Anthem.

(Mrs.) M. A. REID,
Secretary.

ST. JAMES: Cambridge; Cambridge P.O.—Meeting held 8.4.39. There were many members present. The President spoke on the work of the Branch during the past year. Election of officers: Mr. C. V. Gourzong, President; Messrs. D. T. Brown and W. R. Chambers, 1st and 2nd Vice-Presidents; Mr. H. I. Watts, re-elected Treasurer; Mr. J. Gordon Excell, Secretary; and Mr. C. E. Allen, Assistant Secretary. Committee of Management: Messrs. S. O. Ramsay, N. Morris, J. W. Kentish, R. Dehaney, Mrs. Trought, and Rev. Wilson. A resolution was passed asking that Ducketts property be purchased for purposes of Land Settlement. Fees were collected. It was decided that there should be a Membership Drive. The singing of the National Anthem terminated an enjoyable meeting.

J. GORDON EXCELL,
Secretary.

Mount Horeb: Mt. Horeb P.O.—Meeting held 22.4.39. Present were: Rev. J. J. Thomas, President; Messrs. J. G. Johnson, 1st Vice-President; H. D. Thomas, Acting Secretary; and over 12 other members. Correspondence was read from the Colonial Secretary re the purchasing of the Mafoota part of the Montpelier property for Land Settlement. The President gave his valedictory address for the year 1938-39; the Treasurer's Report showed a balance in hand of £4 2s. 1½d; the Secretary's Report showed a year of progress, resulting in an increase from 19 to 140 members. Election of officers: Mr. J. G. Johnson, President; Mr. H. B. Johnson, 1st Vice-President; Mr. W. McIntosh, 2nd Vice-President; Mr. Sam Nelson, 3rd Vice-President; Mr. Wm. Maitland, Treasurer; and Teacher H. D. Thomas, Secretary.

H. DINGWELL THOMAS,
Secretary.

Orange: Adelphi P.O.—Annual meeting held 27.4.39. 23 members paid up their dues. The Secretary's annual report was read, and recorded the activities in which members had engaged during the year. The Treasurer's report showed a balance of 19/9d. Both reports were received by the meeting. Election of officers: A lady president was elected—Mrs. R. A. Anglin; Mr. B. B. Bowen, re-elected 1st Vice-President; Mr. J. D. Malcolm, 2nd Vice-President; Secretary-Treasurer, re-elected; Miss I. Nelson, Asst. Secretary. Executive Committee: Mrs. R. Lawrence, Messrs. B. Davidson, A. Pedlar, Jobson, E. Scott, together with the officers of the Branch, and two auditors to be appointed by the Executive Committee. Messrs. Hugh Lindo and C. Hamilton, Dairyman and Overseer, respectively, of Irving property, and who subsequently became members, gave addresses containing very useful and practical hints to the members. They were thanked. The Instructor addressed the meeting on "Marketing of local crops." The National Anthem terminated the meeting.

E. S. ANGLIN,
Secretary.

ST. MARY: Epsom; Annotto Bay.—Meeting held 3.5.39. Instructor Jones visited holdings during the day, and attended the meeting. Mr. A. C. Gibson presided. 9 other members including the Secretary and Miss Z. R. James, President, were in attendance. A ram was purchased by the Branch. Members asked for a large supply of sweet potato slips. The Instructor asked the Secretary to write all Authorized Persons connected to the Branch re attendance at meetings. Mr. Gibson exhibited two seedless grape fruits from the budding of the late Instructor Chas. Henderson. The meeting terminated with the National Anthem.

FRED A. EDWARDS,
Secretary.

Flint River: Troja P.O.—Meeting held 9.3.39. Present: Mr. H. G. Vassal, Instructor Jones, Mr. E. L. Fawcett, Secretary, 18 members and 5 visitors, who subsequently became members. The Branch decided to secure a boar. In respect of the late Instructor Henderson, members stood with bowed heads for two minutes. Authorized persons gave their reports. The Instructor gave an address. Election of officers: Mr. H. G. Vassal, President; Mr. Eli Riley, 1st Vice-President; Mr. U. Ogilvie, 2nd Vice-President; Mr. N. Sinclair, 3rd Vice-President; Mr. E. L. Fawcett, Secretary; Miss M. R. Dawkins, Asst. Secretary. The meeting terminated with the singing of the National Anthem.

(Miss) M. R. DAWKINS,
Asst. Secretary.

Highgate : Highgate P.O.—Annual meeting held 19.4.39. The meeting was presided over by Mr. C. L. Belnavis, 1st Vice-President. Present: Instructor Jones, many visitors and a good turn out of members. Correspondence was dealt with. Enrolment of members took place. Election of officers: President, Mr. J. E. Groves; 1st Vice-President, Mr. C. L. Belnavis; 2nd Vice-President, Mr. S. A. Henry; 3rd Vice-President, Mr. R. G. Hunter; Secretary, Mr. C. L. Williams; Asst. Secretary, Mr. J. H. Hunter; Treasurer, Mr. Robt. Amritt. The Secretary presented a report of the Branch for the year 1938-39. Members and visitors enjoyed a Social, which was presided over by Mr. Ken Robinson. The meeting adjourned after the singing of the National Anthem.

C. L. WILLIAMS,

Hon. Secretary.

Lucky Hill—Jeffrey Town : Lucky Hill P.O.—Annual meeting held 18.4.39. Present: Mr. Burke, 1st Vice-President, who presided; Messrs. W. A. Smith, and H. C. Cameron, 2nd and 3rd Vice-Presidents; Mrs. W. A. Smith, Treasurer; Mr. L. A. M. B. Coke, Instructor; Messrs. C. L. A. Stuart, A. B. Champagne and Chevannes from the Wood Park Branch, 14 other members, many other visitors and the Secretary, Mr. F. W. Geohaghan. The Secretary read the report of the Branch which was highly commended. Election of officers: President, J. H. Jefferson, Esq.; 1st, 2nd and 3rd Vice-Presidents, Messrs. T. A. Burke, W. A. Smith, and H. C. Cameron, respectively; Treasurer, Mrs. W. A. Smith; Secretary, Mr. F. W. Geohaghan. Messrs. Stuart, Champagne and Coke gave addresses. They were thanked for the valuable hints. They encouraged the members to cultivate foodstuffs for which there is a favourable future. New members were elected. Dues were taken. Authorized Persons present reported on their work. Reference was made to the insanitary condition of the Johnnie Spring. Two members of the Parochial Board who were present promised to do their best to improve the water supply. The meeting closed with the singing of "the King."

F. WRIGHT GEOHAGHAN,

Secretary.

ST. THOMAS : Dalvey; Dalvey P.O.—Meeting held 20.4.39. Present: Instructor McLaren, officers of the Branch and a number of other members. The Instructor lectured on Banana disease. He encouraged members to plant ground provisions as a security against scarcity of food, and assured them that the Parent Body is willing to find a market for their provisions and vegetables. He was thanked for his able lecture. The election of officers took place. The officers of the past year were elected en bloc. The Land Settlement Scheme was referred to. The National Anthem brought the meeting to a close.

J. A. McPHERSON, Asst. Secretary.

Golden Grove : Golden Grove P.O.—Meeting held 22.3.39. The following matters were dealt with:—Land Settlement Scheme, Golden Grove Market Shed and the Hampton Court Water Supply. There were 16 members present and 3 visitors. Instructor McLaren addressed the meeting. He advised the treatment for Panama Disease and Leaf Spot. The meeting was terminated by the singing of the National Anthem.

DORRELL REID, Secretary.

Middleton : Spring Garden P.O.—Meeting held 15.3.39. Present: Mr. Cyril Walker, President; 10 members and a visitor. Reference was made to the recent visit of the Hon. R. Ehrenstein, M.L.C. Correspondence was dealt with. It was suggested that the Parochial Board be asked to procure an ambulance to convey indigent people to the hospital. Authorized Persons reported "all correct." The meeting ended with the singing of the National Anthem.

W. A. THOMPSON, Secretary.

Somerset : Trinity Ville P.O.—Meeting held 5.4.39. Present: Mr. A. Brown, President; Mr. J. A. Telfer, former Secretary and M.P.B., and 12 others who subsequently were enrolled as members. Election of officers: Mr. A. Brown, President; Messrs. F. L. Beckett and Jeremiah Graham, 1st and 2nd Vice-Presidents respectively; Treasurer, Mr. F. L. Beckett; Secretary, Mr. J. A. Telfer. Managing Committee: all officers of the Branch and Messrs. George Burke and Theophilus Wilson. Arrangements were made for the next meeting. The National Anthem was sung, and the meeting good adjourned.

J. A. TELFER, Secretary.

Woburn Lawn : Hagley Gap P.O.—Meeting held 14.4.39. Present: Instructor McLaren, Messrs. D. N. Hinds, President; J. Shepherd, 1st Vice-President; J. White, Treasurer; Mrs. A. L. Morgan, Secretary, and many other members. Discussions on the rearing of poultry and small stock took place. Correspondence re a road for the district was dealt with. Mr. McLaren gave an address on Leaf Spot Disease. The date of the annual meeting was fixed. The meeting terminated with the singing of "the King."

(Mrs.) A. L. MORGAN,
Secretary.

TRELAWNY: Duncans; Duncans P.O.—Annual meeting held 18th April, 1939. Present: The President, Mr. L. N. Grant; 1st Vice-President, Mr. P. G. Burke; Treasurer, Mr. J. S. Stockhausen; Secretary, Mr. C. M. Aitcheson, and other members and visitors. The Treasurer reported a deficit of 1½d. for the closing of the past year's account. Members thanked the President and other officers for their valuable services of the past. Officers elected: President, Mr. L. N. Grant; 1st Vice-President, Mr. P. G. Burke; 2nd Vice-President, Mr. J. T. Easy; Treasurer, Mr. J. S. Stockhausen; Secretary, Mr. C. M. Aitcheson; Reporting Secretary, Mr. M. G. Smith. The newly appointed officers pledged to do their best to serve the society. It was decided to hold bi-monthly instead of monthly meetings. The meeting was brought to a close by singing the National Anthem.

M. G. SMITH.

Reporting Secretary.

Troy: Troy P.O.—Annual meeting held 25.4.39. Present: Messrs. Jabez Walker, 1st Vice-President, in the chair; F. W. Kelly, Instructor; L. A. Parker, Secretary and 25 members. The Secretary gave an account of the past year's activities, and the Treasurer presented the financial report, which was adopted. The election of officers took place, after which Mr. Kelly gave an interesting lecture. He was heartily thanked. The meeting rose after the singing of "the King."

L. A. PARKER,

Secretary.

WESTMORELAND: Porter's Mtn.; Mt. Peto P.O.—Annual meeting held 17.4.39. Present: Mr. D. N. Clarke, President; Messrs. Chas. Parkins, 2nd Vice-President; L. M. Watson, 3rd Vice-President; Instructor Hastings; Mr. D. F. Bowen, Secretary, and a large number of visitors. The Secretary gave a concise account of the year's activities. He was thanked. The Treasurer's report which showed a balance of one pound, eight shillings (£1 8s.), was adopted. Election of officers: President, Mr. D. N. Clarke, (re-elected); 1st Vice-President, Mr. Charles Parkins; 2nd Vice-President, Mr. L. M. Watson; Secretary and Treasurer, Mr. D. F. Bowen; Asst. Secretary, Miss V. E. Kentish; Rev. C. A. Wilson, Hon. President. Funds were collected towards the purchase of a bell. Arrangements for a Social were made. Correspondence: (a) Letter from Lawyer Tomlinson, M.P.B., promising to do his best to help the neglected District of Porter's Mountain. (b) Letter from the Parochial Board of Westmoreland stating that the water scheme for Porter's Mountain would be begun at an early date. The Instructor in his address, explained the object and use of proposed marketing centres by the Government through the Agricultural Society. The prices for the different crops were read. The Instructor mentioned how a "Shareholder Scheme" could help the Branch financially. The meeting was brought to a close by the National Anthem.

D. F. BOWEN,

Secretary.

JUVENILE BRANCHES.

ST. MARY: Flint River.—Meeting held 9th March, 1939. Present: Instructor Jones, 69 members of the Branch, members and visitors of the Senior Branch. Cabbage suckers were distributed for the competition. Members reported that hens were laying. One member reported that he had 12 rabbits. The annual report was read. The Instructor gave a useful talk and promised to visit plots of members. He advised them to cultivate tomatoes and cabbages, and congratulated those who had reared animals successfully. The meeting came to an end with the singing of the National Anthem.

(Miss) M. R. DAWKINS,

Reporting Secretary.

ST. ELIZABETH: Happy Grove.—Inaugural meeting held 31.1.39. The meeting was called to order by the Teacher, Miss B. E. Carnegie, who asked Instructor Wray to address the gathering. Mr. Wray stressed the importance of a Juvenile Branch, and the necessity for co-operation. Sixty-four Juveniles were enrolled as members, and the officers of the Branch were elected. The meeting terminated.

L. A. HOLNESS,

Secretary.

Retirement: Maggoty P.O.—Meeting held 24th March. Present: the Vice-President, S. O. Thompson; Instructor Kelly, Teacher Nelson and 42 members. The meeting decided to hold a Juvenile Show on June 9. A Report was submitted on the laying out of plots for cultivation in the school premises. Instructor Kelly gave demonstrations in sowing Radish seeds and spraying a square chain of Irish Potatoes with Bordeaux Mixture. All members were interested.

(Mrs.) S. H. NELSON,

Secretary.

OTHER REPORTS RECEIVED.

Branch and Secretary.	Date of Meeting.	Attendance.	Business.
<i>Clarendon—</i> Mt. Airey .. (Miss M. E. A. Dawkins)	14.3.39	Over 19	Water supply. Cabbage Competition. Demonstration Plot. Report of A. P. Meeting of Clarendon Branches Associated.
Rock .. (S. F. Manning)	22.3.39	47	Correspondence. Returns of Authorized Persons.
Stewarton .. (Miss I. I. O'Reilly)	4.4.39	..	Addresses by Supervisor Hanson and Instructor Virtus. Correspondence. Report of A. P.
Sunbury .. (Rufus A. Peart)	14.3.39	21	Address by the President. Report of Treasurer. Election of officers.
<i>St. Ann—</i> Thicketts .. (T. A. Linton)	22.4.39	Over 22	Correspondence. Reports of Treasurer and Secretary. Election of officers. Report of A. P.
<i>St. Catherine—</i> Bellas Gate .. (Miss G. M. Fletcher)	3.4.39	..	Election of officers. Reports of Secretary and Treasurer. Enrolment of members. Musical items. Address by President.
Morris Hall .. (T. E. Lawrence)	12.4.39	16	Financial Statement. Land Settlement Scheme. Extracts from the Journal. Signs. Reports of Authorized Persons.
Time & Patience .. (Miss A. M. Boyd)	27.4.39	Over 8	Debate. Correspondence. Routine matters.
<i>St. Elizabeth—</i> Nightingale Grove .. (Miss E. J. Dobson)	5.4.39	Over 15	Ram. Loan Bank. Tank. Correspondence. Reports of Secretary and Treasurer. Election of officers. White yam heads.
Southfield .. (J. J. Miller)	21.4.39	..	Irish potato plots. Show. Election of officers.
Do. ..	17.3.39	..	Buying station for tomatoes. Routine matters.
<i>St. Mary—</i> Epsom .. (Fred. A. Edwards)	5.4.39	9	Correspondence. Election of officers. Reports of Secretary and Treasurer. Ram. Addresses by the Teacher and President.
<i>St. Thomas—</i> Hagley Gap .. (Miss B. Singleton)	28.4.39	16	Reports of Secretary and Treasurer. Correspondence. Roll Call. Dental clinic. Election of officers.
Pear Tree River .. (V. Ralph McLean)	24.2.39	15	Correspondence. Signboards. Enrolment of members.
<i>Trelawny—</i> Spring Garden— Rock Spring .. (L. C. Coy)	13.4.39	..	Correspondence. Address by Instructor Kelly on Leaf Spot Disease and "Economic Stress."
<i>Westmoreland—</i> Porter's Mtn. .. (D. F. Bowen)	20.3.39	..	Social. Bell. Water Supply.

Department of Agriculture.

POSTAGE.—Postage on all communications addressed to the Superintendent of Public Gardens, Hope Gardens, Kingston P.O., must be prepaid.

REMITTANCES.—The full value of all orders must be prepaid. In making payments, cheques and postal orders should be made payable to the Director of Agriculture and crossed Bank of Nova Scotia. Postage stamps are accepted only for amounts smaller than 6d.

COST OF BOXES.—The costs of boxes used in packing plants will be added to each account at the rate of 6d. for every 10 plants or portion of 10 plants.

N.B.—BOXES ARE NO LONGER RETURNABLE.

FRUIT TREES AND PLANTS.—Price 1d. each, except where otherwise stated, delivered free at any railway station.

Star Apple, Otaheite Apple, Jack Fruit, Nilgiri Hills Blackberry plants from beds; Coco Plum, Naseberry, Granadilla, Guava, Cherimoya, Mangosteen, 6d.; Grape, 3d.

ECONOMIC PLANTS.—Price 1d. each, except where otherwise stated, delivered free at any railway station.

Ylang-ylang (*Cananga odorata*), Cinnamon, Annatto, Breadfruit, 9d.; Sarsaparilla, Avocado Pear.

ORNAMENTAL SHADE TREES AND SHRUBS.—Price 1d. each, except where otherwise stated, delivered free at any railway station.

Bauhinia Galpini; Brownea coccinea, Couroupita guianensis (Cannon Ball Tree), 3d. Dillenia indica, 3d. Michelia Champaca (Champac Tree) 3d. Palms, several species; Poinciana regia (Flamboyant), Posoqueria longiflora, Saraca indica (Asoka Tree), 3d. Tecoma spectabilis (Poui), 3d. Jacaranda mimosæfolia, 3d. Spathodea campanulata, 3d. Cassia nodosa, 3d. Triplaris surinamensis, Ficus lucida 1/-. Cassia grandis; Thuja 6d. each. Ficus elastica, 1/- each. Murraya exotica, Cordia sebestena, Diospyros discolor (Ebony), 3d. Lignum vitae.

FREE ECONOMIC PLANTS.—Pithecolobium arboreum (Wild Tamarind), from beds; W. I. Cedar, Mahogany, Bastard Cabbage, Bitter Damsel.

NOTE.—Plants are conveyed free by railway. They are guaranteed in perfect order when sent out of the Gardens, but the Department is not liable for any loss or damage in transit. PLANTS WILL NOT BE SENT TO PRIVATE RESIDENCES.

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THE JOURNAL

OF THE

Jamaica Agricultural Society.

The more people do the more they can do; he who does nothing renders himself incapable of doing anything; while we are executing one work we are preparing ourselves for undertaking another.

Vol. XLIII.

AUGUST, 1939.

No. 8.

BOARD OF MANAGEMENT.

THE regular monthly meeting of the Board of Management of the Jamaica Agricultural Society was held at the offices of the Society, 10—12 North Parade, Kingston, on Wednesday, the 5th July, 1939, at 11.30 a.m. There were present: Hon. Geo. Seymour Seymour, O.B.E., First Vice-President in the chair; Mr. U. Theo. McKay, Third Vice-President; Messrs. R. A. Burke, T. J. Cawley, C. O. Cover, T. P. V. McDaniel and D. D. Phillips; Messrs. P. St. L. Bacquie and A. P. Hanson, Supervisors of Instructors and the Secretary, Arthur Thelwell.

During the course of the meeting, the Hon. and Rev. J. W. Maxwell, Rev. W. J. Thompson, Second Vice-President, Hon. M. H. Segré, Hon. C. A. Reid and the Hon. G. A. Jones, C.M.G., Director of Agriculture (*ex-officio*) attended.

Apologies for Absence.

Apologies for absence were submitted on behalf of Messrs. W. Harper Watson and H. G. Dunkley.

Welcome to Mr. Burke and Congratulations to Mr. Cover.

The Chairman on behalf of the Board welcomed Mr. Burke on his return from leave of absence abroad.

Congratulations were offered to Mr. Cover on the recognition of his services to the parish of St. Ann.

Both gentlemen acknowledged the expressions of the Board.

Confirmation of Minutes of the previous Meeting.

The minutes of the previous meeting having been sent to members, they were taken as read and on the motion of Mr. McKay seconded by Mr. Cover were confirmed.

Matters arising out of the Minutes.

(a) *Marketing.* The suggestion of the Chairman that this matter should be deferred pending the arrival of the Marketing Officer was agreed to.

(b) *Land Settlement Committees: Appointment of Rev. Messam to act in Hanover.* The Secretary stated that Government had asked that the Society nominate another member to act for Major Pease during the latter's absence on leave. In accordance with the directions

of the First Vice-President he had communicated with the Rev. H. U. Messam who had agreed to serve, and the information had been conveyed to Government.

The Board approved of this action.

(c) *Letter from Director of Agriculture re services of Secretary.* Letter No. DE 381—5775/39 dated the 19th June, 1939, stating that the Director of Agriculture and the First Vice-President, Mr. Seymour, decided to defer interviewing the Colonial Secretary in respect to the continuation of the services of the present Secretary to the Society until the close of the present session of the Legislative Council, was submitted and noted.

(d) *Government Aid to Citrus Growers: Letter from Department of Agriculture.* The following was presented:—

No. DE. 281 5046/39

June 18, 1939.

"I have to acknowledge the receipt of your letter dated 22nd May, 1939, forwarding a Resolution from the Porus Branch of the Jamaica Agricultural Society.

2. In reply I have to inform you that the terms of the Resolution of Council under which the Citrus Development Loan Board operates calls for a minimum acreage of five acres to be owned by the applicant. The Board is therefore not in a position to assist people who desire to plant less than five acres. I suggest that the small settlers apply to their loan bank for assistance.

3. I regret that the price at which budded plants is sold cannot be further reduced as the price charged is below the cost of production.

(Sgd.) G. A. JONES,
Director of Agriculture.

The discussion which followed disclosed that it was the opinion of the Board that it was desirable that every citrus grower who so desired should be allowed to participate in the extension scheme, especially as it was recognised that the small farmer contributed a considerable portion of the export trade.

The Chairman of the Citrus Development Loan Board, Mr. F. E. V. Smith being present, explained that the Committee operated under the terms of a resolution passed by the Legislative Council and therefore could not do anything in this matter. He pointed out that the inclusion of a large number of farmers with less than five acres under citrus cultivation would necessarily entail a great deal of attention to numerous details attendant on the granting of such loans and also additional expenses of administration. Small farmers had, however, been granted concession by the extension of the period for the payment for plants.

The Secretary was directed to prepare a draft of a workable scheme under which assistance could be provided for the small farmers, taking into account the information given by Mr. Smith, for submission to the next meeting of the Board.

(a) *Marketing.* The Marketing Officer, Mr. F. E. V. Smith outlined the scheme under which it was proposed that the supply of foodstuffs to Government Institutions should be continued. He stated the terms of the agreement with Mr. Maynier and said that the whole matter would be placed before the Marketing Committee.

Mr. Burke asked questions relative to the marketing of Jamaican products in New York in competition with products from Porto Rico, the proper distribution of products in the local markets and what had been done by the Department in the matter of canning.

The Marketing Officer outlined the operations that were in progress with regard to these three matters.

On the motion of Mr. Cawley seconded by Mr. Stuart, Mr. D. D. Phillips was added to the membership of the Marketing Committee.

Statement of Accounts.

(a) *Statement for June.* The monthly statement of accounts was presented and the Secretary was directed to send copies of the same to the members.

(b) *Auditor's Report.* The Secretary presented the following report and stated that copies had been issued to individual members of the Board.

14 Duke Street,
Kingston, Jamaica, B.W.I.
6th June, 1939.

TO THE BOARD OF MANAGEMENT OF THE JAMAICA AGRICULTURAL SOCIETY.

We have audited the books and documents of the Jamaica Agricultural Society, to the 31st March, 1939, and certified the Balance Sheet in connection therewith.

Sales Department.

With reference to the Sales Department of the Society, we have prepared a comparative statement between the years 1938 and 1939, showing the turnover, Gross Profit, and Percentage on sales of the entire operations, and have also given similar comparisons on five of the largest items of trading. It will be observed that although the turnover shows an increase over the previous year of £3,430 13s. or 72%, the Gross Profit only increased by £280 8s., thereby decreasing the percentage of Gross Profit on Sales from 23% in 1938, to 16.75% for the year under review.

This decrease has been general as will be seen from the enclosed statement, and is not confined to any one trading item, the largest decreases however, have taken place in the following accounts :—

Insecticides 48.31%. Vegetables Seeds 10.58% and Stock Feed 10.53%.

The Expenses of this Department for the year amounted to	£1,051 13 3	
as against the amount of	...	638 13 10 in 1938.
showing an increase of	...	£ 412 19 5

The increase in expenses is made up mainly of :—

Salaries and Wages : Increase of	...	£168 17 5
General Expenses :	" " ...	77 14 7
Bags used :	" " ...	76 10 1
Loss on Goods consigned and by theft	...	56 1 8

The Net Profit for the year amounts to £310 16s. 9d. which is 3.82% on the Turnover, as against 9.42% shown for the previous year.

During the course of our Audit of the above Department, we were able to make certain observations as regard to the internal working of this Department. From such observations, we are of the opinion that taking into consideration the marked increase in the Turnover to which we have previously referred, the details of the internal working of the present system should be improved, so as to bring about a perfect co-ordination with the Accounting Department, which is most advisable and desirable. In our opinion, the Accounting Department should be supplied with records of every detail of receipt and disposal of goods, thereby ensuring a system of control.

Buildings.

During the year the Society expended the sum of £504 9s. 1d. on Buildings, in addition to the Government Expenditure of £1,000, provided for this purpose.

As this additional expenditure represents value in the form of additional space for future operations, it is our opinion that this amount should be carried forward on the Balance Sheet, and written off over a period of years. We therefore recommend that the sum of £168 3s. 1d. be written off against the surplus profits, representing one-third of the amount of £504 9s. 1d., leaving a balance of £336 6/- to be carried forward, and written off against future profits.

Official Account.

It has again been found necessary to absorb the amount expended in excess of the Income on the Official Account, and this has depleted the Surplus Funds of the Society to the extent of \$938 11s. 2d.

Leaf Spot Department.

In the year under review, a separate set of Accounts had to be set up to deal with Leaf Spot operations. The result of these operations are only disclosed in the financial accounts in total, but the detailed transactions have been exhaustively audited.

In conclusion, we beg to state that the Balance Sheet is properly drawn up, so as to exhibit a true and correct view of the Society's affairs, according to the best of our information and the explanations given to us, and as shown by the Books.

(Sgd.) BRENNAN & PARKINSON,
Auditors.

COMPARATIVE TRADING ACCOUNT.

SALES DEPARTMENT.				1937-38	1938-39
Turnover	...	...	...	£4,704 8 8	£8,135 2 2
Gross Profit	...	...	...	1,082 2 0	1,362 10 0
Percentage on Turnover	...	...	...	23%	16.75%
VEGETABLE SEEDS.					
Sales	...	...	...	1,125 16 6	1,237 3 0
Gross Profit	...	...	...	568 12 1	493 18 11
Percentage on Turnover	...	...	...	50.51%	39.93%
Decrease	...	...	...	10.58%	
SEED POTATOES.					
Sales	...	...	...	1,390 19 4	2,871 14 7
Gross Profit	...	...	...	101 0 3	417 13 2
Percentage	...	...	...	7.26%	14.54%
Increase	...	...	...	7.28%	
STOCK FEED.					
Sales	...	...	...	1,137 3 8	2,105 8 11
Gross Profit	...	...	...	211 1 7	168 19 4
Percentage	...	...	...	18.56%	8.08%
Decrease	...	...	...	10.58%	
FERTILIZER.					
Sales	...	...	...	345 7 4	984 15 5
Gross Profit	...	...	...	106 18 4	250 1 7
Percentage	...	...	...	30.96%	25.75%
Decrease	...	...	...	4.21%	
INSECTICIDES.					
Sales	...	...	...	219 5 2	188 17 9
Gross Profit	...	...	...	72 12 8	28 13 9
Percentage	...	...	...	33.13%	15.18%
Decrease	...	...	...	48.31%	

Mr. Cover expressed the hope that when the audit was undertaken by Government a similar report would be available for the guidance of the Board in regard to the Society's operations.

The Secretary was directed to forward a copy of the report to Government and to ask whether it might be expected that the audit would be carried out on lines similar to the Society's present system.

The Secretary pointed out that the trading done by the Society for the financial year had been very remarkable. In some cases he said, the operations had been doubled yet the percentage of profit was reduced in every instance because the cost of supplies to agriculturists had been greatly reduced.

It was directed that the congratulations of the Board to the officers of the Society who were responsible for this service should be recorded.

Questions.

Mr. Cawley re Journal. Mr. Cawley asked why some volumes of the Journal were issued in double numbers and also why the issues were irregular.

The Secretary said that the Government Printing Office could not do the printing expeditiously as during the sessions of the Legislative

Council that Department generally had a considerable amount of urgent work. He had intended to suggest to the Office Committee meeting called for that morning but which fell through for want of a quorum, that the issues of the Journal should be printed alternately by the Government Printing Office and a commercial firm.

The Secretary was directed to secure details of cost and other relative information for submission to the Board at the next regular meeting when the matter would be further considered.

Mr. Stuart re illegible reports. Mr. Stuart asked whether an effort could be made to make copies of reports and other matter issued from the office to the members of the Board more legible.

Other members supported this, and the Secretary was directed to see to this.

Questions. The Chairman said that the item "Questions" on the Agenda was really intended for answers to questions submitted by members previously and directed that the item should in future be listed as "Replies to Questions."

Communications.

(a) *Letter from C.S.O. covering Memo re Sugar Cane Experiments.* The following letter was read:—

N. 1637/39

26th June, 1939

"With reference to your letter No. 22 of the 12th June, 1939, in regard to the establishment of sugar cane nurseries, I am directed to transmit to you the accompanying copy of a memorandum on the subject which has been prepared by the Agricultural Chemist and the Superintendent, Sugar Cane Experiments.

2. I would suggest that the memorandum referred to above should be published in the Journal of your Society.

3. The question of establishing district agricultural stations, including cane nurseries is receiving the consideration of Government.

(Sgd.) J D. LUCIE SMITH,
for Colonial Secretary.

The Secretary said that copies of the Memorandum had been sent to members of the Board.

Mr. Cover said in his opinion the report should not be reproduced in the Journal until certain points raised therein were clarified.

A vote was taken to determine whether or not the report should be published and as the majority of members voted in favour of it being published in the Journal, the Secretary was instructed to have this done.

(b) *Correspondence with Thos. W. Biscoe re Anti-Erosion Campaign.* The Secretary was directed to circulate this matter to the members and refer the subject to the next regular meeting of the Instructors Committee.

Instructors and Additional Branches. Mr. Cawley asked whether it was the intention of the Board to discourage the formation of additional Branch Societies in Instructional districts.

The Chairman replied that there was no such intention and the Secretary was directed to convey this information to the Instructors, it having been stated that there was some doubt in the minds of some Instructors as to the policy of the Board in this matter.

Half-Yearly General Meeting.

(a) *Report of previous Meeting.* This was laid on the table.

(b) *Secretary's Report.* The Secretary submitted a report of the operations of the Society during the period 1st October, 1938, to 31st March, 1939, and stated that this would be presented to the Half-Yearly General Meeting in July.

The report was received.

(c) *Agenda.* A committee of the First Vice-President and the Secretary was appointed to scrutinise the Agenda for the Half-Yearly General Meeting.

Reports from Committees.

(a) *Instructors. (i) Special Meeting.* The following was submitted:—

4th July, 1939.

A Special Meeting of the Instructors Committee was held on Wednesday, the 25th June for the purpose of appointing an Assistant Instructor.

2. Seven candidates were interviewed.

3. Mr. A. L. Robinson has been selected for the appointment and this is recommended for the approval of the Board.

(Sgd.) ARTHUR THELWELL,
Secretary.

Mr. Thompson moved that the appointment of Mr. A. L. Robinson as an Assistant Instructor be approved on the usual terms.

This was seconded by Mr. Stuart and unanimously carried.

(ii) *Regular Meeting.* The following was submitted:—

5th July, 1939.

The Instructors Committee met this morning and report as follows:—

1. *Instructors and Summer Course.*—It was decided that the lines followed on former occasions should be adhered to—that the Secretary make arrangements for the accommodation of the Instructors at Hope at the rate of £1 per week each and 4d. per mile travelling. The Agricultural Foreman to be excluded from this arrangement.

2. *Instructors' Services to Jamaica Banana Producers Association.*—Letter from Hon. A. B. Lowe asking for the services of the Instructors in connection with a competition for the Contractors of the J.B.P.A. for the improvement of their banana cultivations was discussed and it was decided that the Society could not assist in such a competition limited to the contractors of one company, but would agree to assist in every way if the other companies came into the scheme.

The Committee however instructed the Secretary to submit the following counter suggestion—That the Companies should pay extra for the additional hands of bananas over nine hands as this would create an incentive for the people to grow bigger and better bananas.

3. *Potato Spraying.*—Reports from Instructors Atkinson and Thompson on the results of spraying potatoes against Blight were submitted.

4. *Instructors' Increments.*—The Secretary reported that the Government had now approved of the new scale of salaries to the Instructors and the payment of this year's increment is approved.

5. *Chepstowe Plot—Dairy Cow.*—It was decided to purchase the cow on this plot, the purchase price to be charged against the expenses of the plot.

6. *Bombay Mango Plot—Fullerswood Park.*—The Secretary reported that this plot had been affected with Thrips which had been treated and the pest controlled.

It was also decided to ask the Department of Agriculture to furnish a report on the possibility of eradication and control of this pest.

7. *Leave of Absence.*—Arrangements for leave for Instructors are approved as set out below:

Instructor Kelly—14 days (Doctors' certificate).

Instructor Atkinson—month of August.

Supervisor Bacquie—month of August.

Instructor Byles—month of September.

Instructor Robotham—month of September.

Instructor Jones—month of October.

Instructor G. R. Graham—month of November.

8. Application from Hayes in Clarendon for affiliation is recommended to the Board.

9. The Committee approved of the Marketing Division giving Headman Wright extra remuneration for overtime work done by him in connection with the Tomato venture at Cross Keys in Manchester.

10. Report from Instructor Darby on the Tomato project in South Manchester was received and the Secretary was instructed to circulate to the members of the Committee.

(Sgd.) G. A. JONES, *Chairman.*
(Sgd.) ARTHUR THELWELL, *Secretary.*

Mr. Cawley asked what arrangements were made for placing the newly appointed Assistant Instructor, but the Chairman ruled that the question could not be considered.

Juvenile Branches.

(a) *Watson-ton—Application for grant re Projects.* This Branch stated that it intended to have projects in Beetroot, cabbage, cauliflower, pineapples, sweet potato and peanuts and that with the exception of cauliflower and sweet potato all the vegetables mentioned had been experimented on in the School Garden.

On the motion of Mr. Maxwell seconded by Mr. Burke a grant of One Guinea was authorised.

(b) *Macca Tree—Report on Vegetable Competition.* This report was presented and the Secretary was directed to circulate copies of it to the members of the Board.

(c) *Brittonville.* A letter from the Brittonville Branch thanking the Board for a subsidy granted was presented and tabled.

Competitions.

(a) *White Yam—Clarendon: Report.* The report of the White Yam Competition which was conducted in Clarendon was presented and the Secretary stated that it would be published in the Journal.

Comments of members on the circulated copies were also read.

The Secretary asked that a future policy on this Competition be determined and it was decided to include it in:

(b) *White Yam Competition—Malvern: Application for grant £5* in the discussion. The Malvern Branch reported a successful Competition during the last year and asked that a grant be made so that the Competition may be repeated.

After discussion on the motion of Mr. Thompson seconded by Mr. Burke, it was decided that a sum of £35 be allocated for the purpose of repeating the White Yam Competitions, i.e., £25 to be divided equally between the parishes of St. Ann and Clarendon and £10 for the Competition in St. Elizabeth.

The luncheon adjournment was taken.

Resumption.

On the resumption there were present: Hon. Mr. Seymour Seymour, presiding; Messrs. Cawley, McDaniel and Phillips; Hons. Little and Reid, the Supervisors of Instructors and the Secretary.

During the course of the meeting, Rev. W. J. Thompson and Mr. Cover attended.

Diseases of Plants and Animals: Insect Pests.

(a) *Panama Disease of Bananas—Monthly Report.* The Secretary stated that this report was not yet to hand.

(b) *Hog Sickness.* The Secretary reported that there was an outbreak of Hog Sickness in the Frankfield area of Clarendon. The matter had been reported to the Department of Agriculture and the Senior Veterinary Officer had promised to furnish a report on the situation.

(a) *Owce: Secretary's Report on Travelling for June.* This was submitted and noted.

Mr. Cawley said that with an Assistant Secretary now established in the office, he thought the Secretary could be advantageously employed in travelling with the object of consolidating agricultural efforts in specified areas.

The Secretary said the Director of Agriculture and himself had been planning such visits and already one Instructor's district had been taken.

(b) *Application from Mr. Macdonald for sick leave.* The Secretary stated that Mr. Macdonald had applied for leave and the application was covered by a Doctor's certificate. The matter had been referred to the First Vice-President who had approved of leave being granted to the Accountant for one month as from the 19th June.

This was approved.

Resolutions from Branches.

(a) *St. Catherine Branches Associated re: (i) Cement Factory.* This resolution represented that a Cement Factory should be established in the Island on co-operative lines and protested against monopolies being given to capitalistic concerns.

The Secretary was directed to advise the Association of Branches that the matter of the Cement Factory had been taken up with Government and was receiving consideration.

The Secretary was directed to forward resolutions on the following subjects to the various Departments concerned.

- (ii) *Land Settlements (7 resolutions).*
- (iii) *Roads (5 resolutions).*
- (iv) *Water Supplies (5 resolutions).*
- (v) *Requirements of Bartons District.*
- (vi) *Centres for examination of Vendors (2 resolutions).*
- (vii) *Appointment of Dentist for each Parish.*
- (viii) *Parochial Dispensary.*
- (ix) *Resolution of condolence re late Mr. Morgan Jones.*
- (x) *Leaf Spot.*
- (xi) *Bridge at Pear Tree Grove.*

(b) *Retreat re Coconut Industry.* The Secretary said that this resolution which asked that Government be requested to foster and protect the Industry had been referred to the Marketing Officer who had replied stating that the action that Government proposes to take following the report made to them by the Committee appointed to advise Government as to the re-organization of the Coconut Industry with a view to the establishment of a Coconut Marketing Board, would no doubt be made public at an early date.

This was noted.

The Secretary was directed as to the Government and other Departments to which the following resolutions should be referred:—

- (c) *Border re*
 - (i) *Registrar Office at Mt. Charles.*
 - (ii) *Road.*
 - (iii) *Appointment of Justice of the Peace.*
 - (iv) *Govt. Savings Bank at Border P.O.*
- (d) *St. James Branches Associated re (i) Payment for Crown Lands at Jericho Mountain.*
- (ii) *Demonstration Plot at Maldon.*

(iii) *Journal.* This resolution conveyed the request that Household Hints and Poultry Notes should be regularly published in the Journal.

Mr. Cawley said he would repeat a resolution which had been passed by the Board requesting the Secretary to collate information regarding the poultry industry from every angle and have it printed in pamphlet form.

The Secretary said he would do this, but that he had to await certain data which were being arrived at by actual poultry keeping which had been undertaken by certain members of the Society.

(iv) *Leaf Spot Control*. The Secretary was directed to advise the Association of Branches regarding the efforts of Government in this matter.

The Secretary was directed to forward the resolutions submitted on the following subjects to the various Departments to be dealt with:

- (e) *Manchester Branches Associated re*
 - (i) *Afforestation.*
 - (ii) *Land Settlement.*
- (f) *Hanover Branches Associated re*
 - (i) *Leaf Spot Disease.*
 - (ii) *Marketing (2 resolutions).*
 - (iii) *Roads in Land Settlements.*
 - (iv) *Services of Secretary.*
- (g) *Tydixon Branch re Land Settlement.*
- (h) *Mizpah re Water Supply.*
- (i) *S. James Branches Associated re Services of Secretary.*
- (j) *Trelawny Branches Associated re*
 - (i) *Road (4 resolutions).*
 - (ii) *Land Settlement.*
 - (iii) *Govt. Savings Bank at Wakefield.*
 - (iv) *Assistant for Instructor Kelly.*
 - (v) *Water supply.*
 - (vi) *Maternity Nurse.*

With regard to the resolution dealing with the roads in Land Settlements, the Secretary was directed to ask the Colonial Secretary as to the policy which Government proposed to adopt.

New Members.

On the motion of the Chairman seconded by Mr. Cawley, the following were added to the membership of the Society:—

- Thos. W. Biscoe, Finn Plantation, Banana Ground.
- M. C. Dougall, Petersfield, Seaforth.
- Shim Kong, 43 West Street, Kingston.
- Henry George deLisser, Highgate.
- A. A. Robinson, Blackstonedge.
- Moses Matalon, 149 Harbour Street, Kingston.
- Allan V. Lyons, 13 South Camp Road, Kingston.
- Major A. C. Payton, Sussex, St. Anns Bay.
- Percy Junor, Spaldings.
- L. H. Bicknell, Agualta Vale Ltd., Annotto Bay.
- E. E. C. Henriques, Industrial Garage, Church St., Kingston.
- W. L. Coke-Kerr, Barossa Cottage, Mandeville.
- T. H. Sharp, Christiana.

Other Business.

(a) *Letter from C.S.O. re Cement Factory*. Letter No. 4161/32 dated 28th June, 1939, advising as to the action of Government in the matter of the proposals regarding a Cement Factory was submitted and noted.

(b) *Letter from Elected Members Association re Deputation on Railway Passes*. The Secretary reported that a meeting had been arranged between the Deputation from the Board of Management and the Elected Members Association for that afternoon at 5.15 p.m.

The Hon. Mr. Reid said that the Secretary of the Elected Members Association had telephoned and asked him to request that the meeting be postponed as Council had adjourned that day and a number of the Elected Members would be out of town.

After discussion as to a possible convenient date for a meeting, it was decided that representations in writing should be made to the Elected Members Association and that they should be requested to appoint a deputation to wait on Government in regard to the subject.

(c) *Audited Accounts re Leaf Spot and Auditors' fees.* The Secretary presented financial accounts for the Leaf Spot Department for year ended 31st March, 1939, duly audited by Messrs. Brennan & Parkinson.

Account for Ten Guineas for this service was also presented.

On the motion of the Chairman seconded by Mr. Cawley, payment was authorised.

(d) *Application from Mrs. Foster for three months leave of absence.* Application from Mrs. Foster for leave of absence from the 1st August to the 31st October, 1939, was granted on full pay.

(e) *Clarendon Juvenile Exhibitions—Easter Monday 1940.* The Secretary stated that the application was for the reservation of the date.

The Board approved of this.

(f) *Juvenile Appliances and grant from Jamaica Welfare Ltd.* The Secretary presented the following memorandum:—

JUVENILE APPLIANCES.

I have secured three third dimension telescopes and sets of educational pictures for the use of Juvenile Branches.

2. The cost is £9 7/-.

3. This sum will be provided from the donation to the Society of £25 by the Jamaica Welfare Ltd. The balance of this account is £9 12s. 5d.

(Sgd.) ARTHUR THEFWELL,
Secretary.

This was approved.

Plan of Work of Juvenile Branches.

Mr. Cawley pointed out that from time to time applications were being received from Juvenile Branches for grants for projects and Exhibitions, and also that the Branches were increasing numerically, and it was desirable that there should be some plan of work. He thought it undesirable that awards of small sums of money instead of tools and other useful articles should be made as prizes.

The Secretary was asked to prepare a scheme which would embrace adjustments in this matter.

(g) *Resolution from Little London Branch re Justice of the Peace.* The Secretary was instructed to refer this matter to the Custos for the Parish.

(h) *Resolutions from Beckford Kraal Branch re (i) Water Supply, and (ii) road.* The Secretary was directed to transmit these resolutions to the Parochial Board of the Parish.

The meeting adjourned to Wednesday, the 2nd August, 1939, at 11.30 a.m.

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LEAF SPOT OF BANANAS.

WILSON POPENOE—*United Fruit Company.*

IN the summer of 1936, a strange disease was reported to be attacking banana plants in the Ginger Hill section of St. Elizabeth. A month or so later it was observed at Bowden, in St. Thomas, and was identified as Leaf Spot or *Cercospora musae*, a disease which had invaded the banana farms of Honduras and several other parts of Central America about the end of 1935.

Twelve months later Leaf Spot was present in all parts of the Island except Portland and the northern portion of St. Mary. To-day it exists in every parish. Enlightened banana growers agree that Leaf Spot must be controlled if the industry is to continue on a profitable and extensive basis; and Government has provided £200,000 to carry the work of control through the initial stages.

HISTORY.

Previous to the year 1910, there is no record of Leaf Spot having caused serious damage to banana plantations anywhere in the world, though its presence in Java was reported as early as 1902. From 1911 onwards it attracted much attention in Fiji, where it was particularly destructive in the new plantations of the Singatoka or Sigatoka valley. Though it had probably existed in Australasia for many years, this was the first time it had assumed economic importance; and it was given the name "Sigatoka disease," by which it is known to-day in many regions.

Shipments of Gros Michel bananas from the Fiji Islands were reduced within a few years' time from 1,300,000 to less than 100,000 stems. A young but promising industry received a blow from which it has never recovered.

Next we hear of Leaf Spot attacking banana plantations in Queensland and New South Wales. Here, in the nineteen twenties, it was at times responsible for heavy losses; at other times it did little damage, so that it became known as a disease which was more or less epidemic in nature; but it was noticed that its effects were cumulative, and it became necessary to abandon a plantation after six or eight years. Much work was done by government investigators, who determined in a general way the relationship between virulence of the disease and weather conditions.

Up to this time the American tropics had, so far as is known, been free from Leaf Spot. In 1932 it was observed in Surinam (Dutch Guiana); in 1934 its appearance was recorded in Trinidad; and in the late summer of 1935 it was found in the plantations of the Ulua valley in Honduras. No one can say that it did or did not exist in the Caribbean prior to 1932; no one can say how it spread from Surinam to other regions, if we assume that it was not present in the Caribbean earlier than 1932, and that it spread throughout this region from the southeast. But it is the considered opinion of many scientific men that wind has been a major agency in its dispersal.

Following its appearance in Honduras, the disease lost no time in showing up elsewhere. Within a few months it was reported from Mexico, where it has done much damage; from Guatemala; and from Nicaragua. A little later it was found in Cuba, Jamaica, and Costa Rica; still a little later in Colombia and Panama. By the end of 1938 it was known to be present in every important banana-producing country around the Caribbean.

The damage done in Honduras was great. Since almost nothing was known regarding successful methods of fighting the disease, no control measures could be put on foot until they had first been tested experimentally. The basis of experimentation was (1) knowledge of similar plant diseases and their control; (2) the early work done in Australia by Simmonds and others, which was discouraging rather than otherwise; and (3) the researches of Stahel in Surinam.

An anxious year passed, during which every fungicide thought promising was given a trial. By the end of the year, it had been shown that copper compounds would effect satisfactory control and their extensive use was undertaken,—at first by dusting as well as spraying, later by spraying only, since it developed that dusting was proving more costly than spraying and not providing the same measure of control. Because of difficult terrain and a wet climate; central mixing and pumping plants were installed, each large enough to take care of 800 to 1,000 acres, with galvanised pipe leading from them. Frequent outlets on the pipe system made it possible to attach 200-foot rubber hoses and spray the immediate area, after which the spray gang moved on to the next outlet.

In the meantime, many thousands of acres of fine bananas had gone out of production. The farms had to be cut down to the ground and completely rehabilitated.

The work done in Honduras formed the basis of control methods adopted in nearby countries. With adaptation to local conditions, these methods are in use to-day on more than one hundred thousand acres of bananas. But it may be well to mention, in passing, that they did not work *at once*: that is to say, the beneficial results of spraying are not apparent in a few weeks, or even a few months in some cases. Of course less infection will be apparent within a few months; but the better part of a year may pass before good fruit is again produced, if the plantation has been suffering from the attacks of Leaf Spot for some time before spraying is commenced.

THE NATURE OF THE DISEASE.

Leaf Spot of bananas is not a mysterious disease unlike anything else which has been known to the agricultural world. It belongs to a large group of plant diseases, some of which are well-known to planters of coffee, sugar cane, and other tropical crops. In facing Leaf Spot, therefore, we are able to lean upon the principles of control which have proved successful when applied to similar plant diseases.

Leaf Spot starts as a microscopic spore or "seed," club-shaped and segmented when seen under a strong lens. This spore is so tiny that it will float long distances on the breeze; and its vitality is such that it will remain alive for many days, inactive, however, until it chances to fall upon a banana leaf, where, if conditions for germination and growth are favourable, it will multiply. So far as is known, this particular kind of spore will not grow on any plants except those of the banana family, and it will not even grow upon all kinds of bananas, though the majority of those in common cultivation are susceptible.

These spores, be it understood, are liberated by affected banana plants in immense numbers,—literally millions of them. That is why it is not easy to eradicate Leaf Spot, once it has become established in any given region. It will always be impracticable, even if theoretically possible, to track down and destroy the last banana leaf with a spot on it. That is why we do not say that spraying is a "cure" for

the disease; we say it "controls" it, because the object is not to get rid of the infection but to keep it reduced to a point where good bananas are produced in spite of an occasional leaf with a few spots on it.

Investigations in Australia, not yet considered complete, suggest that the spores will not germinate if the humidity of the air immediately surrounding them is lower than 80 per cent. and this must continue for many hours, perhaps 24 or more, if successful growth is to commence. These same investigations indicate that growth of the fungus is most rapid at temperatures between 75 and 85 degrees Fahrenheit, and that below 55 and above 95 it seems doubtful that germination of spores can take place. *Rate of spread therefore appears to be determined by the number of favourable periods of temperature and humidity which occur during the year, and the sequence in which they take place.*

Once germinated, the spores become microscopic fungus growths which work down into the tissues of the leaves, causing the elongated dark brown spots which are known as "primary infection," and which have appropriately given rise to the common name "Leaf Spot." These spots, half an inch or less in length, may remain for some time without changing; again, under favourable weather conditions, they commence to spread, perhaps through re-infection of the surrounding area by spores they themselves have produced; then shortly they form patches of dead tissue, which unite to form larger patches, until we have eventually the characteristic appearance of "burning" which represents the advanced stage of the disease. The reduction in total area of leaf tissue becomes so great as to prevent normal development of the fruit, which remains stunted or (where damage to the leaf surface has not been so extensive) appears fairly normal but ripens almost immediately upon harvesting. The wholesomeness of the fruit is not affected in any way; that is to say, one can eat it without suffering any serious consequences, but its commercial value is ruined.

THE PRINCIPLES OF CONTROL.

The above description of Leaf Spot suggests the lines along which control must be sought. The object should be to maintain a sufficient number of healthy leaves to permit development of normal fruit. To do less may result in loss of the crop: to do more,—that is, to attempt complete control or eradication of the disease,—is far too costly.

The spores of this and most other fungi attacking agricultural crops cannot grow in the presence of copper. Control can therefore be obtained by keeping the surfaces of the leaves, both upper and lower, covered with copper at all times. This is the principle which is behind spraying with Bordeaux Mixture, Perenox, and other copper compounds. They will not kill the disease once it has entered the leaf tissues: they merely prevent further infection.

From what has been said regarding climatic conditions and the growth of the fungus, it is obvious that in most parts of Jamaica, there are certain times of the year when little activity takes place. There are other times when the fungus develops vigorously. These latter are the periods of "epidemic," which vary in frequency and intensity with the climate. If we could forecast weather conditions with sufficient accuracy, we could reduce the expense of control measures to a minimum. That is to say, it would only be necessary to spray a short time in advance of weather favourable to the growth of the

fungus, repeating the sprayings at intervals of a few weeks, until the approach of dry weather. Practically speaking, this is not altogether feasible; hence we spray more or less throughout the year. Ultimately it will probably be possible to adjust spraying cycles to seasonal requirements much more closely than it is safe to attempt to-day.

A region like Jamaica, where control measures are still new in many places, and where there are marked changes in climatic conditions from one place to another, must await the experience of several years before knowing just what treatment will provide protection to banana plants in a given area at minimum cost. This should be remembered by every grower, and the logical corollary is: Take no chances in the meantime. Experiment with all the treatments and variations you wish: it is the only way progress can be accomplished. But do it on a small scale: do not jeopardize your crop.

Control which lasts through the dry season but "blows up" during the wet season is not the objective. If Leaf Spot wins the ascendancy during a wet period, all the ground gained during months of spraying may be lost in a few weeks. Let us repeat: the wet season is the critical time, and the only successful control is that which carries the plants through this period without permitting the development of infection to a damaging degree. This should be in the back of every grower's mind at all times. Even in badly infected areas, plants tend to "clean themselves up" (outgrow the disease) during a long dry spell. This is all to the good: it makes control during that part of the year a relatively easy task. But it is in one respect the most dangerous feature of Leaf Spot: it acts like a narcotic upon the troubled banana grower, causing him to forget the losses of the past wet season, and the approach of another one.

Is it necessary to spray before the appearance of infection in the plantation? Experience, both in Jamaica and elsewhere, indicates that it is not. Money can be wasted by spraying when no infection is present; and on the other hand, money can also be wasted by waiting too long,—waiting until infection has reached the advanced stage, when it may be very hard to get it under control. In St. Catherine it has been the policy to commence spraying as soon as there is light scattered infection throughout a given area. This means that there are occasional elongated spots on some of the leaves; it does not mean that "burning" is already evident.

If spraying is postponed too long, the future crop may already have been damaged beyond repair. For it is well known that the number of hands per stem is established definitely some months before "shooting" or appearance of the blossom. If, during the period when the embryo bunch of fruit is being formed within the pseudobulb, the plant is inadequately nourished because of the reduction of leaf-tissue caused by Leaf Spot, the number of hands per stem will be less than normal, and cannot later be changed by any amount of spraying, fertilizing, or other treatment. For this reason it is sometimes considered wise, when spraying is commenced on farms which have been seriously attacked by Leaf Spot for some months, to cut out large plants before commencing the treatment, and bring on a new crop. This is a matter regarding which experience and good judgment are required: there can be no arbitrary rule laid down.

Again, if spraying is commenced at the beginning of the dry season, when one can count on the assistance of the weather in cleaning up his farm, he is justified in leaving plants in a more advanced stage of infection than it would be profitable to rehabilitate at the beginning of the wet season when nature is against him.

In every case, the thing to remember is that infection takes place on the young leaves, probably even before they are completely unrolled; and the earlier one can cover newly-developed leaves with copper the better is the protection. This is the reason for frequent spraying. If the cycles are longer than a few weeks, new leaves appear, become infected, and the infection develops before they are sprayed. It must be remembered always that spores are abundant everywhere, ready to infect each new leaf the moment it appears.

IN CONCLUSION.

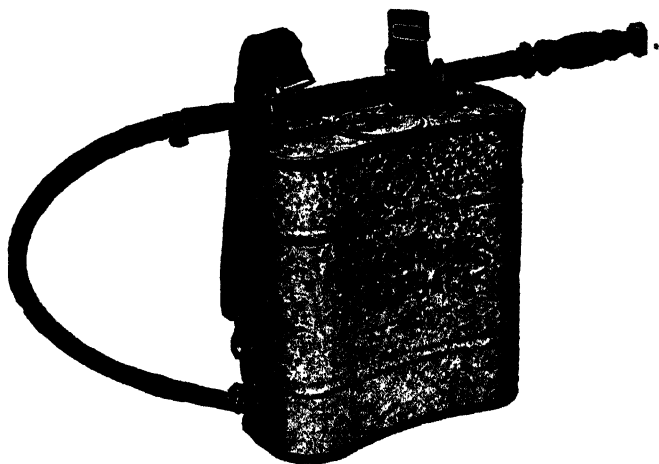
It is not the purpose of this paper to discuss in detail the various chemical compounds which have been used for control of Leaf Spot, nor to describe the technique of spraying. Opinions differ, and much remains to be learned on both points. Other and better sprays than the copper compounds may eventually be developed. Certainly the technique of spraying may improve with time. For the present it may be said that there are many makes of spray pumps which will do the work, just as there are many makes of automobiles which will take you to town. Some will do it more cheaply, and give the user less trouble, than others. As regards the technique of spraying, the main thing to be stressed is this: Do a thorough job.

The methods of control which are at present recommended for Jamaica are not the result of theoretical speculation nor academic reasoning. They are based upon experiments not only in tropical America, but Australia and Fiji as well. To arrive at the methods now recommended it has been necessary to test out many ideas, and expend in vain much effort. When the disease first appeared in tropical America it was thought by some that it was due to unsuitable soil. Others blamed it on bad cultural practices, such as too much shade in the farms. To date, it has not been found that any soils produce immunity nor even resistance to Leaf Spot: and numerous experiments to "cure" the disease by adding chemicals to the soil have resulted in failure. On the other hand, it has been noticed that the largest and most vigorous plants, those growing on the richest soils, are frequently those which succumb first to the attacks of Leaf Spot. And efforts to control the disease by thinning out the stand of plants in Central America, so as to let in more sunshine, have been wholly unsuccessful. In fact it has even been noted, in many instances, that severe infection develops earliest among plants on outside rows, precisely where they have the most light.

Finally, there is no reason to expect that we are going to wake up some fine morning and discover that Leaf Spot has vanished from the Island, never to return. Such has not been the case in Fiji or Australia, where it has been present 25 years. If we are to judge by experience elsewhere,—and until we have more experience here there is no other basis for judgment,—spraying will become standard practice in Jamaica. The groundwork has already been laid by those pioneers who have installed spraying in their farms: they deserve much credit for their vision and their courage.

Spraying forms part of the routine cultural program in connection with the production of many of the world's great crops. Since the days when banana growing was on a primitive footing, Jamaica has learned to irrigate, to till the soil, to prune rationally, to fertilize; now she must learn to spray. And if she does as good a job of this as she has of the other four, Jamaican bananas will continue to hold their high position in the world's markets.

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BUILDING MATERIALS IN CONNECTION WITH TERMITES.

*Extract from lecture delivered by W. H. EDWARDS, D.I.C. F.R.E.S.,
Government Entomologist.*

(Concluded.)

Concrete:

Concrete structures when properly built and made with gravel and sand of good quality and Portland cement in sufficient proportion can, from the practical point of view, be considered as being effective barriers for termites.

In Jamaica however, inexperienced builders are frequently astonished to find that those pests tunnel easily through concrete walls. Such occurrences do not surprise us because we have had opportunities to study this aspect of the problem and we know that few materials of construction is so misused in this country as cement.

I am aware that you all know how concrete should be prepared, but as I have frequently found that carelessness in mixing as well as in the casting of concrete piers, walls, or floors is not only responsible for structural weakness, but also allows termites to ascend freely through such structures by the voids and cracks which occur therein, it may not be inopportune if I submitted a few remarks on the effects of negligence in mixing concrete and packing it in the wooden forms.

As you know concrete is a mixture of cement or of lime with sand and gravel or broken stones. Termites tunnel freely through lime concrete, whilst they do not excavate into well constructed cement structures.

It is very regrettable that concrete for the lower foundations is generally very carelessly prepared in Jamaica; probably for the reason that the lower parts of foundations are subsequently hidden below ground surface. For whatever purpose concrete is used it is *very important* that the sand and the gravel should be *very clean*, that is, free from dirt, clay or vegetable debris. Consequently the mixing should never be made on the ground but on a *clean* wooden or cement floor.

Do not prepare more than can be used within thirty minutes and when the wet mixture is poured into the forms, it should be made to settle down so that there will be no voids in the mass.

Foundation walls, and piers should in preference be made of dense, fine-grain concrete, rich in cement. A lean mixture of 1:3:6 (1 part of Portland cement, 3 parts of sand, and 6 parts of gravel by volume) can be used for sub-foundations, but a mixture of 1:2:3 is necessary when belt courses, or any such mechanical barrier against termites are made as we shall describe hereunder.

Stones or brick held in coarse mortar usually affords easy passages to termites through voids and cracks. In infested areas precast concrete blocks which leave empty vertical spaces through which the insects can creep in concealment should not be used for the lower structures.

Sand:

With regard to the intrinsic qualities of the materials used for making concrete, I may point out that in Jamaica we generally give casual attention to the colour of sand and to its relative cleanliness but apart from that we take for granted that provided the particles



ILLUSTRATION II.

Part of a concrete nogged wall showing the careless manner in which concrete has been placed into the forms. The surface will be rendered but the voids all along the wooden beams will allow termites to travel freely on all the walls of the building and to destroy rapidly all the wooden part of the structure.

are sufficiently small, river sand is of uniform quality and that only coral sand from beaches differs from river sand.

We consequently take our sand where it is easiest to get it, usually under bridges near the mouth of rivers. If you examine such sand under the microscope you will find that it consists mostly of amorphous particles of limestone which are very light and even porous and friable.

Sand produced by erosion varies in composition according to the rock from which it comes. We have in Jamaica a coastal belt of limestone which produces a very soft sand which is deposited at the mouth of the rivers flowing through this coastal limestone. This sand contains a large proportion of those amorphous and porous particles which make it unsuitable for making concrete.

The harder particles, quartz, etc., being heavier, are generally found higher up in the river bed and in many such places sand of good quality for building purposes is found. When you tell me that termites excavate through your concrete structures I am not surprised; what astonishes me is to find that up to now no elementary discrimination has been made with regard to the quality of the materials you employ.

Gravel:

The same lack of discrimination occurs with regard to gravel used for making concrete.

Every one merely knows that the size of the stones should not vary too much from the specification agreed on and that for making concrete broken stones with sharp angles should preferably be used. I do not think any one knows yet, or evidently cares to investigate, what types of stones exist in his district or where gravel suitable for making concrete can be obtained.

The sample we now submit comes from a heap being used for making concrete for the erection of a very large building; you will note that the material has been obtained by breaking pebbles taken from the bed of a torrent. You will find that out of 25 of these stones we have picked at random,—

Five come from granite stones—generally good though some are too friable.

Eight consist of white limestone which is fairly hard;

Three consist of yellow coastal limestone which is unsuitable for building purposes;

Five are andesite which can be crushed by pressing hard between the fingers;

Four are conglomerates: hard stones included in a soft cementing matrix and are unsuitable.

52% of these stones are good for making concrete and 48% definitely unsuitable.

I leave you to draw the obvious conclusions.

Engineers, Architects and Workmen.

We are all getting ready to wage war to the finish against our enemy, the termites. We have examined critically the materials you are using to erect your defences and considered what ammunitions or insecticides we can employ. We shall now have to review the men.

One of, if not the greatest difficulty we meet in Jamaica for controlling termites effectively, (and this also applies to most parts of the tropics) is that along the whole scale in the hierarchy of builders,

engineers, architects, carpenters or masons, no one knows enough about termite control and even about building methods suitable for the tropics.

The weak point in the training of engineers and architects to practice in the tropics.

It is astonishing to see that whilst those who are to practice in medicine, sanitation, agriculture, entomology, veterinary science, etc., in the tropics go through a course in tropical medicine, tropical agriculture, etc., before they find employment, engineers and architects undertake to build in the tropics without having studied the special problem with which they are confronted and according to methods they would apply in countries where termites, and to a great extent wood decay, can be ignored with impunity.

From every point of view and even the aesthetic one, the results of the undertakings of builders who have not yet acquired experience in their new sphere of activity or who will not modify their methods to cope with local conditions are deplorable.

The beautiful colonial type of architecture which was being gradually evolved has been sacrificed before the style had given the full measure of its beauty for heterogenous copies from so-called 'modern styles' which have been evolved in countries where conditions are totally different to those existing in Jamaica.

We are now condemned to live in houses and work in offices which defy logic and every conception of art; those buildings are ugly, often hostile in appearance; this may be a matter of opinion but what cannot be contradicted is that they are breeding cages for termites and for household pests of every description.

Jalousies which gave fresh air, tempered glare and heat during our tropical summers, which could be so effectively utilized as a decorative motif whilst their construction provided work and opportunities for skilled workmanship for our local carpenters have now been almost banished to give place to more costly and generally disproportionately large glass windows. We have no doubt that such windows fulfil a useful purpose in alpine sanatoria and for houses in nordic countries where the climate is cold and twilights are long, but in Kingston they transform our buildings into unbearably hot glass houses.

We shall not continue to discuss here the other peculiarities of types of architecture suitable for conditions prevailing where they were evolved, but which are certainly not suitable for those existing in Jamaica.

This digression will not have been out of place if it made you think that the time may have come when it would be wise to ponder and by making comparisons with older buildings you will probably come to doubt whether during the last two decades we have really progressed with regard to structural and architectural achievements.

Those who have not lived in the beautiful old colonial houses should lose no opportunity to visit them. They may make instructive comparisons when they will find that from the structural point of view they stand as models of good planning and conscientious workmanship. It will therefore suffice to compare the charm of the 'old houses' of Jamaica with the impersonal and monotonous so-called 'comfort' of our new houses to realize whether we are progressing on the right lines.

Aiming at spectacular effects many are those who have been building in a pretentious manner without adequate means to allow for the use



PLATE IV.--Illustrating Condition at (c) in Plate II.

A hard wood pile (A) has been used to support the soft wood upright (B) which is bolted to it. It will be observed that at least four important mistakes have been made here.

First, the upright made of susceptible lumber has been made to touch the ground. Secondly, the upright is in intimate contact with the hard wood instead of being insulated by means of pieces of metal sheets or of asphalted roofing or otherwise treated so that transfer of moisture from the hard wood which is sunk into the ground to the soft wood lumber would have been prevented.

Thirdly, the hard wood pile itself has not been treated or even unbarked. This allows the bark and sapwood to convey humidity, fungi causing decay and termites to the upper structure.

Fourthly, the soft wood upright unnecessarily touches the stone foundation on the right.

Plate IV B and IV C show how the structure could have been constructed with or without hard wood piles.

of good materials. The lamentable conditions in which such buildings, built not very long ago are now-a-days, compel us to look to apprehend the future. We fear that unless energetic action is taken, the heavy damage being now occasioned by termites will increase considerably and very rapidly.

Carpenters and Masons:

To assess our difficulties with regard to the services available now-a-days from carpenters and masons, we shall have to make another short excursion into the past and into old buildings constructed very many years ago.

In the days of slavery (which none of us want to see resuscitated) every estate owner had to employ a certain number of Europeans in proportion to the number of slaves they possessed.

Many master carpenters and masons thus came to Jamaica and taught the local manual labour how to build well. This has come to an end since more than a century, and no system of organized apprenticeship has filled the lacuna.

I have personally employed and seen P.W.D. employ a sufficiently large number of carpenters and masons to know that any enterprising young man who comes in possession of a hammer and a saw calls himself a carpenter; if he resides in the country and is not pugnacious, his competitors say that he is a 'bush carpenter.'

You realize how effective the majority of them can be when it comes to the application of methods aimed at the preservation of lumber.

We have during this discussion on building materials, indicated what individuals can do to improve the building materials they employ. As we have already mentioned, however, all the problems connected with the preservation of buildings cannot be solved by private initiative alone. We shall therefore at the end of this lecture submit for discussion suggestions with regards to legislative and other measures which could be taken to protect the interest of the community. In connection with the points we have just discussed it would be advisable to consider:—

- (a) revision of the existing building codes;
- (b) Government control on importation, methods of storage, and sale of lumber in Jamaica.
- (c) further study and dissemination of information about the localities where stones and sand of good quality can be obtained in Jamaica;
- (d) consideration of the desirability of calling the attention of the proper authorities to the necessity of arranging a special course of post-graduate study for engineers and architects who intend to practise in the colonies;
- (e) to consider local arrangements that could be made to institute a system of apprenticeship for carpenters and masons, at least for those employed by Government.

SEED POTATOES.

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EROSION AND AFFORESTATION IN JAMAICA.

By C. SWABEY, Forest Officer.

The Director of Agriculture in his opening address at the Summer School stressed the fundamental seriousness of problems of erosion in Jamaica.

It is impossible to exaggerate the profound effect which excessive soil erosion can have on the welfare of an agricultural community: progressive impoverishment of the soil, droughts, floods, silting of streams and reservoirs, landslides, etc., affect to a greater or lesser degree every person in the Island.

President Roosevelt, in inaugurating the Soil Conservation Service in the United States, remarked that "civilisation is most secure, where soils are fertile, water is abundant and *both are properly used.*" Now, it is with that last phrase that we are chiefly concerned, the importance of conserving and using wisely our priceless assets of soil and water.

Why has erosion become so serious in Jamaica? Why has it not been in greater evidence before? These are questions which are often asked: to seek an answer we must realise that the population of the Island is increasing enormously, whereas the land available remains the same. Consequently, deforestation is occurring at an alarming rate and we are placing increasing demands on our soil resources, demands which, through our wasteful agricultural methods, impose an ever-mounting drain on soil fertility. In the old days, if a patch of hill land was cleared for cultivation, it was allowed to rest for 20-30 years before being used again: to-day that same land may only be rested for 4-5 years before it is cultivated again, and it has no chance of building up any reserves of plant food, and erosion proceeds unchecked. Now this is a problem which practically every country in the world has to face sooner or later: either we are to arrest this erosion and build up for ourselves a sound and permanent agricultural system or we must face inevitable economic and social ruin. It is a choice which Jamaica has to make and to make at once: soil erosion *can* be controlled, but it needs every ounce of energy, co-operation and effort which we can produce.

Factors causing erosion. When sloping land is cleared of forest and the soil exposed, the rains beating down on the unprotected earth, wash out the smaller soil particles and carry them away from the land. In some cases this is due to the fact that the land is quite unsuitable for agriculture and when the natural forest is cleared nothing can prevent erosion taking place. In most cases, however, it is due to unsuitable agricultural methods, clean cultivation on steep hillsides, burning, placing of drains up and down the slopes, instead of on the contour.

The resulting erosion is of two main types, *sheet* erosion, where the top layers of the soil are removed over whole fields and *gully* erosion where the accumulated water digs deep channels into the earth. The latter type is more spectacular and can be seen in a terribly advanced form in the Blue Mountains, Bull Head Mt., and on the Black Grounds of Trelawny: sheet erosion, on the other hand, is often not recognised until the land has become completely unproductive. The soil is then considered to be "worked out": it would be truer to say it has been "washed out" by erosion.

RESULTS OF EROSION.

Soil fertility.—As already pointed out the washing out of the fertile soil particles results in rapidly diminishing crop yields until in a comparatively short time the land becomes completely unproductive. If this were the only effect of erosion it would be sufficiently disastrous to warrant every effort on our part to prevent it. But there are many other effects.

Water Supplies.—In any catchment area where erosion is taking place, the rain which falls does not sink into the ground but runs off the surface of the land into streams and rivers, causing floods and all the damage to property which that implies. On the other hand, where erosion is prevented and the water is allowed to sink into the earth, it re-appears in the form of springs and permanent streams: which yield a permanent water supply, and floods are reduced.

The failure of streams and rivers in Jamaica and the consequent droughts are due in very large measure to the excessive run-off of water on eroding lands and the resultant impermanence of stream flow.

Silting.—The soil removed by erosion is deposited in stream beds or reservoirs: when a stream or river is silted, its carrying capacity is reduced and quite moderate rains will suffice to cause flooding. The silting up of the Hermitage Dam, due to unsuitable agricultural methods in the catchment has resulted in a loss of storage capacity of 30 million gallons already.

Control of Erosion.—Erosion affects so many phases of the activities of the community that it is only by co-ordinated effort by all the affected agencies that effective control can be secured. Misuse of land affects the agriculturist, the forester, the public works engineer, the water engineer, the property owner and countless others.

Land Selection.—Land which is quite unsuited to permanent agriculture should be retained under forest: the Forest Department has already reserved all Crown Lands to which this applies and is engaged on a programme of acquisition of private lands for Forest Reserve. Our problems of expanding population and limited land area demand that such areas should be selected with extreme care, to avoid a possibility of potentially valuable agricultural land being made unavailable for cultivation.

Afforestation.—While in many cases the mere prevention of shifting cultivation, fires, etc., will result in growth of vegetation sufficient to prevent erosion, we must remember that this second growth is valueless and to render the land productive it is necessary to plant economic timber trees. The Forest Department is, therefore, systematically planting up these second growth areas on Forest Reserves: at the same time the distribution of tree seeds and seedlings to private persons is being carried out in collaboration with the Jamaica Agricultural Society.

Improved agricultural methods.—It must be emphasized very strongly that no amount of forest reservation and afforestation can by themselves solve the problems of erosion in Jamaica. It is necessary for soil-conserving methods in hill agriculture to be worked out and systematically employed. The writer of this note is not competent to do more than suggest in general terms the main lines of approach, but it is believed that the following will have to be tried:

- (a) Terracing and the use of barrier strips of retaining vegetation.
- (b) Contour strip-cropping (alternating contour strips of close growing crops or grasses with any clear tilled crops).
- (c) Cover crops and mulching: maintenance of organic matter.

- (d) Contour drainage: planting and cultivating on the contour.
- (e) Crop rotations.

It will be necessary to work out suitable measures of control for different soils, slopes, crops, etc., since methods suitable for one set of conditions may be totally unsuited to another.

Gully Control.—In certain areas in Jamaica the stabilizing of eroding gullies will have to be undertaken: the destructive effect of the ravines in the Sandy Gully catchment is an important example. These gullies can be controlled by sloping off the banks, planting soil-holding grasses, etc., and constructing simple check dams to reduce the water velocity.

Land Tenure.—One of the most important basic causes of misuse of land is the tenancy system: without security of tenure it is hopeless to expect wise land usage. One only has to compare heavily tenanted properties in the hills with adjacent small settler properties to realise the importance of secure tenure. The extension of Land Settlement should make a valuable contribution in this direction.

In conclusion it is urged that agriculturists should pay particular attention to this great problem and endeavour to prevent wastage of soil and water resources on which the prosperity of the community depends.

RAT EXTERMINATION CAMPAIGN.

THIS announces the Jamaica Agricultural Society's Rat Extermination Campaign.

For a long time the rat has held its ground almost unchecked throughout this Island, and the time is at hand when the constant drain on our resources owing to its depredations can no longer be tolerated.

The Rat Problem is a community one. Every man, woman and child is concerned with the rat both economically and physically, whether or not the individual comes into contact with the animals. Wherever foodstuffs are grown, stored or transported, rats abound. They thrive in sewers, dumps and other unspeakable places, and at nights they drag the filth and disease of those places into stores, warehouses, markets, and thus pollute the food intended for human consumption. From the economic standpoint the loss occasioned by rats is a very real one. It has been estimated that the loss in Jamaica is £1 per rat per annum.

Co-operation is of vital necessity in any campaign for the control of rats. These animals are highly migratory, and in addition to individual effort, community organisation is essential to prevent reinfestation and to secure permanent relief from these pests.

We are forced by circumstances to limit the present campaign to about half-a-dozen parishes which will be named later. In each such parish we shall need the assistance of every individual who has an interest in the country. Our method will be a wholesale poisoning of the rats on a night somewhere around the middle of October. Farmers all over the land, men and women in towns and even boys and girls will take part in the baiting at sunset when a death-dealing banquet will be served for Mr. Rat.

Details are in course of preparation.

This preliminary article is to bespeak the earnest co-operation of everyone in furthering a sentiment of intolerance against this filthy and destructive pest.

C. L. S.

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THE GOAT.

LECTURE BY MR. J. B. SUTHERLAND TO THE GOAT SOCIETY.

THE principal "Dairy Breeds" are Saanens, Toggenburg, Anglo-Nubians and Alpines. The blood of all these breeds appears in the pedigrees of the best dairy goats to be found in the West Indies.

Saanen:—The white breed of goats known as the "Saanen" comes from the Saanen Valley in Switzerland. They carry long heads, broad foreheads, facial lines straight with coarse muzzle, ears erect or pointing, neck long and slender with or without tassels. The colour is generally white, cream or biscuit. The coat is short with a fringe along the back. They are good milkers, but owing to the white pigment of their skin, they cannot stand the tropical sun.

Toggenburg:—The Toggenburg is definitely Swiss in appearance. They have long lean heads with or without beard, and with or without horns, ears erect or pointing forward—neck long and slender with or without tassel appendages. Colour from light drab to dark chocolate with or without white on the stomach. There are generally two white stripes along the face, and white on legs from knee downwards. The coat is short throughout; but there is a ridge of long hair along the back and a thicker growth around the hind quarters.

Anglo-Nubians:—This breed has been the pioneer in the improvement of Milch Goats. Holmes Pegler relates that as far back as 1872, Dr. Cripps of London with a view to improving the old English goat, used Indian goats procured from vessels in the docks, which had brought from India good milkers to supply the needs of children on the voyage. This breed should be called "Anglo-Indian." It is among the largest type of goats, possessing coarse hair, heavy lopping ears, and prominent Roman-like forehead. They are hardy, good milkers, and may be described as the "dual-purpose goat for milk and mutton."

Black Alpine:—This is a smaller type of goat black and white in colour. They are very good milkers and rather quiet and docile in habits. The head is long, neck rather slender, with shield along the chest. I have had considerable experience with this breed, and strongly recommend the crossing of this type and the Toggenburg with the Anglo-Nubian to produce the tropical goat. I am very pleased to be able to say that this is also the opinion of Dr. J. L. Shannon, a Specialist on the goat in Trinidad.

Care of the Goat.

The goat has been appropriately termed "the poor man's cow." If you are getting a goat—remember, "Every man under his vine and fig tree." You must first decide to feed your goat on your own place and do not rear more than you can manage. Think of good goats—not wild goats. A good first-class long-breasted Nanny is like a good bit of mahogany furniture added to the home. In buying a goat your first duty is not to take the seller's statement. Get hold of the goat's udder and feel it thoroughly. If a large handful ball is felt, then the goat's udder is spoilt and even her kids will be poorly fed.

A goat is at her best between 4 and 6 years. They live and give good returns up to 12 years. The age of a goat is generally seen by the length of the teeth and an old Nanny gives a creaking, squeaking sound in her knees when you walk her off slowly. A goat when on

heat shakes her tail freely, and gives a short, quick bleating sound. Goats have two main seasons for kidding—February and October. They take five months to deliver the kids.

Tie out your goat in the morning, and bring her in at lunch time. She likes the home and is always happy watching the family's movements. Give her fruit skins and a little fresh feed in the evening between 4 and 5 o'clock. Make a feed rack in your goat house as is done for horses. Put up two long boards so that your goats and kids will sleep away from the mud in wet weather.

The feed for goats should be placed high up—just a little out of easy reach. The goat is most happy at feeling that she is stealing. If you live in dry areas then you must provide water regularly for your goats. A little white lime should always be thrown into this water as it helps in the development of bone. Your goats should be regularly sprayed for lice. I find lice very prevalent in Jamaica. One quart tin of Cooper's Dip will serve many years. Use one noggin or the measure cup full of dip placed in 1 gallon of water and then wash or spray the animal.

Worms are all the time affecting your goats. Two ounces of Copper Sulphate, 2 ozs. of chopped up Jackass Rope (tobacco) put in 1 gallon of water should be kept always. Give a half pint bottle of this mixture every three months after starving your goat for one whole day. If your goats show signs of Diarrhoea give your Copper Sulphate treatment. If your goat is suffering from loss of cud or acute indigestion give 1 drop of Jeyes fluid, 1 tablespoonful of bi-carbonate of soda, 1 tablespoonful of salt in 1 quart of luke-warm water. If you are keeping a scrub-herd, use the knife on the ram kids. We need more knife work if we want better goats and better mutton in this Island. If you want to produce milk without a "goaty" smell, don't allow the ram kids or rams in your nanny shed. This is the chief cause for the prejudice against goat's milk.

Care of the Kids.

Keep the service date of your Nanny and watch her carefully when she starts springing down the udder. Remain with the goat at kidding time. As soon as the kid is delivered squeeze out the mucus from the nostrils as this weakens the kid and sometimes kills it. Put the first kid in a milk box and allow the mother to lick it dry. See that the kids suck the colostrum or first milk. Pull off some of the milk if the udder is too heavy. Give a dose of Epsom salts to the Nanny, say 1 dessertspoonful to a pint bottle of water. If the kid looks weak and sickly on the second day, a teaspoonful of Epsom salts will give it free bowel movement and make it strong and happy.

A few hours spent over your Nanny at this period will save you a valuable kid and save you a waste of five months' work. If a pair of kids arrive, then give away the buck kid to some settler who can care it upon his common goat. Milk your goat twice daily. If you have no use for enlarging your herd, give away all your kids and rear a true dairy goat.

Give a little bran mixed with oats every morning just at the time of milking. Make a milking stand for your Nanny. She will gladly jump up on the stand and call to you every morning if you accustom her to a little grain feed. This type of goat must not be expected to live on hardware and tin pans and old corsets. They must be fed in ratio to their production.

Keep a little Rock Salt always in the goat ranch. A most important point which I would like to emphasise, is that goats do not like muddy places. I have been told that goats don't do well in some districts, and I wondered what was the cause because I know that the goat is one of the very few animals which you will find from the torrid to the frigid zones. I then found out that the settlers with upstairs houses or old barns succeeded in keeping good goats. You must have a shed to house your goats.

Goats Milk.

Goat's milk is the nearest to the human milk. It is odourless if the nannies are kept in tidy sheds and away from the ram goat.

Goat's milk contains 9 different salts and also anion which is deficient in cow's milk. Goat's milk has twice as much albumen in it as cow's milk. Best of all, goat's milk is alkaline in its change in the human stomach and not acid. The most delicate babe can keep down goat's milk, whilst cow's milk in its acid change might be harmful to very young children. If the baby's digestive organs are abused with acid milk when young, then a weak, dyspeptic man will be grown.

Goat's milk is excellent for sunburnt faces. Let all the young ladies of to-day use a glass of goat's milk on their faces and they will keep looking as charming as Cleopatra! The fatty globules of goat's milk are very thin and when rubbed on a sunburnt face, enter into the pores and supply the deficient oils which the skin needs.

Tuberculosis is almost unknown in goats, thus, save your stakes from T.B. by keeping a good Nanny.

One goat has broken the record in California by giving 17,157 lbs. of milk from 1929-1931. A good goat gives 4 to 5 quarts of milk per day and should keep up an average of 2 quarts for 10 months of every year. It is said that six goats can be fed upon one cow's ration for one day.

Much praise is due to Mr. Sydney Barton and Mr. Williamson for the introduction of the Saanen and the British goats. Mr. Barton with much love and energy has given a new life to the goat industry of this Island.

Curry Goat Feed.

As we all know the goat's flesh is used as mutton. The good old custom of planters making a "curry-goat feed" and inviting their friends should still be continued. A fat wether should always be buckled and curried at least once a year.

The following is the method for currying the goat: Kill the goat early between 7 and 8 o'clock, and use up the materials listed below:—

30 lbs. Mutton	4 qrts. Coconut Oil.
$\frac{1}{2}$ lb. Gerra	$\frac{1}{2}$ lb. Danna
1 lb. Challote, beat and	1 lb. Garlic
mix together	$\frac{1}{2}$ lb. Black Pepper
1 lb. Onion	1 doz. Peppers
$\frac{1}{2}$ lb. Larchi	$\frac{1}{2}$ lb. Tamric, mix and pound fine.
$\frac{1}{2}$ lb. Fine Salt	

Cut up Mutton in small pieces, scald and add ingredients. Put in pot with oil and steam down from 8 to 1.

Have enough rice and bread to serve 2 lbs. to each man, and enough rum to give $\frac{1}{2}$ pint to each.

See that dinner is served after 4 drinks of rum and not before 1.30 when every man is right hungry.

THE GOAT SPEAKS.

I am the Goat!
 The first friend of man.
 My blood is as his blood;
 My milk is for his nurture.
 My robe for his protection.
 I came down from the mountains,
 To his cave,
 Because I heard his child
 Crying in the night:
 I have borne his sins
 Between my horns
 Into the wilderness.
 My blood has been poured out—
 On the altar,
 As a sacrifice,
 For his transgressions.
 I have lived in his tents—
 Marched with his armies,
 Sailed in his ships.
 Down through the centuries—
 I am the Goat!

MARY S. ROCK.

WHY DOES LETTUCE RUN TO SEED?

There is very little difficulty with seeding lettuce in early spring and autumn. It is only during the heat of late spring and summer that the phenomenon occurs.

Heat and droughts are the cause of the trouble.

Lettuce will seed if you do not water well in dry weather, or if you allow the soil to cake and crack. Regular stirring and watering, therefore, are leading safeguards.

Another cause of premature seeding is congestion in the seed-bed. You must make a point of transplanting your lettuce when it is forming the third or fourth normal leaf.

AUTHORIZED PERSONS.

Return of arrests to Quarter ended 30th June, 1939.

St. Thomas	...	...	...	7
Portland	...	...	...	5
St. Mary	...	...	...	14
St. Ann	...	...	...	2
St. James	1
Hanover	3
Westmoreland	3
Manchester	6
Clarendon	14
St. Catherine	10

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PRODUCTION OF ONIONS.*

ONION is one of the oldest and the most extensively used vegetables. It is cultivated in almost every country where agriculture has been developed, and constitutes an important article of food. There are reasons for its wide popularity. It not only contains valuable nutrients but is credited with remarkable medicinal properties. Besides, it has the great merit of keeping quality for a fairly long period and power to withstand rough handling during transportation which has secured for it a place in international commerce.

SUITABLE SOILS.

The best soil for onion is a rich sandy to clay loam which is freely workable, retentive of moisture and yet well-drained, of fair depth and well supplied with organic matter. Heavier loams do yield profitable crops when properly handled, but should receive a sufficient amount of organic manures to prevent baking which damages the growing plants. The main requirements are a high state of fertility, excellent physical condition or tilth, sufficient drainage in places of heavy rainfall and freedom from weeds. Stiff, water-stagnated and low-lying lands are not suitable for this crop. Lighter types of soils produce bulbs with a brighter skin than those produced on heavier soils. Onion is not able to tolerate strongly acidic soils, whereas on slightly alkaline soils, it produces a fairly good growth.

METHODS OF CULTIVATION.

This being a very profitable crop, offers special inducement for the employment of intensive cultural methods. The cultivation of onion is not difficult in itself, but close attention and frequent cultivation for the control of weeds are necessary. If weeds are not effectively controlled from the very start, the cost of subsequent control will be high and the yield will be appreciably reduced. It is, therefore, desirable that onion should follow a crop which has remained free from weeds. Again, this crop should not be planted year after year on the same land, but some system of crop rotation should be adopted because continuous cropping is likely to cause the land to be infested with pests to such an extent as to render it unprofitable for future cultivation. Crops like beans, groundnuts, sweet potatoes or green manure crops can with advantage be included in the rotational cropping scheme.

PREPARATORY CULTIVATION.

Land intended for this crop should be thoroughly well prepared. The old saying "as fine as onion bed" has its significance. Operations of preparatory tillage such as ploughing, harrowing and levelling should be properly carried out. As the crop is a surface feeder, ploughing to a depth of 6 to 7 inches is sufficient. Farm-yard manure or compost, at the rate of 10 tons per acre, is spread over the land and incorporated into the soil during the course of subsequent harrowing operations. The land should be brought to as level a condition as possible so that there may be no difficulty at the time of irrigation.

*Adapted from an article by P. M. GAWALDA, M. Ag. (Bombay) in *The Tropical Agriculturist*. Volume XCII, No. 4, April, 1939.

PLANTING.

The most common method of planting this crop is to sow the seed in specially prepared, raised nursery beds and to transplant the seedlings in the permanent field when they are about six weeks old. The chief advantages gained by the transplanting method are a great economy in the cost of planting material, an opportunity to reject unhealthy and inferior seedlings, a uniform stand and bulbs of regular size.

An area of about 1,600 to 1,800 square feet of nursery beds is required for raising seedlings sufficient to plant an acre. Farm-yard manure, at the rate of about 25 tons per acre, is applied to nursery beds which are then prepared in a manner similar to the broad ridges intended for planting ginger or turmeric. These beds are about 3 feet wide at the top surface, and are as long as the level of the land will permit of even distribution of water. The beds should be fairly compact so as to ensure good germination. Seeds are sown evenly on these beds in shallow furrows 3 to 4 inches apart across the bed. Ten pounds of seed will produce seedlings sufficient for transplanting an acre of land. Nursery beds require to be lightly watered and weeded frequently. Seeds complete their germination within a week. By six weeks' time when the seedlings are 5 to 6 inches high, they are ready for transplanting.

The land for transplanting onions can be laid out in two different ways. The flat bed is most commonly followed, and it is particularly suitable on lighter types of soil. The great advantage in its favour is that it permits of the production of medium-sized, round-shaped, uniform bulbs without much splitting and bifurcating. The bulbs obtained from this method have better keeping quality. The other is the ridge and furrow method chiefly adopted on heavier types of soil so as to prevent stagnation of water. Ridges are prepared 18 inches apart and water channels across the ridges and furrows are opened 12 to 16 feet apart for effective and even distribution of water. Seedlings are transplanted on both sides of the ridges. The bulbs obtained by this method are relatively large-sized and much more succulent and watery, but splitting and bifurcation occur to a much greater extent. The quality is therefore inferior.

In order to make the uprooting easy, the nursery beds are irrigated in the evening before the day of transplanting. Seedlings are carefully uprooted just before they are required for transplanting and carried to the place of transplanting in baskets with mud adhering to the roots. Immediately before transplanting, the beds or furrows are irrigated and, when sufficient soaking has taken place, the seedlings are transplanted in the moist land at the rate of only one seedling in each place. More than one seedling is undesirable as that would retard the healthy growth of bulbs. The spacing between plants on the sides of the ridges is 4 inches. In flat beds the spacing of 9 inches by 4 inches is provided. There is a tendency among some farmers in canal-irrigated areas to transplant seedlings too widely apart. This results in delay in maturity and in unduly large-sized bulbs which have a tendency for splitting and bifurcation. Closer planting is therefore an advantage from the point of view of quality as well as quantity. About 25 to 30 women are required to transplant an acre of land in a day. The crop requires during its early stage ample moisture close to the plants for the development of the root system. Therefore, continuous mild

rain or comparatively frequent irrigation is required in the first fortnight. If the planting is done during the dry period, a second irrigation on the third day, a third and a fourth irrigation at an interval of four or five days are necessary. The crop gets established within a week. In the case of seedlings that have failed to establish within 10 days, the gaps are to be promptly filled in.

MANURING.

•In addition to the organic manure worked into the soil when preparing the land, it is necessary to supply artificial fertilizers for intensive propagation of onions.

Experiments quoted by the Author of the article, demonstrated that phosphates and potash do not appear to be important in increasing yields, in fact it was stated that sometimes they even depressed the yield. Nitrogen in the form of sulphate of ammonia at the rate of 40 lb. of Nitrogen per acre (i.e., 192 lb. sulphate of ammonia or 266 lb. nitrate of soda) improved the yield to a very marked extent, resulting in increased returns.

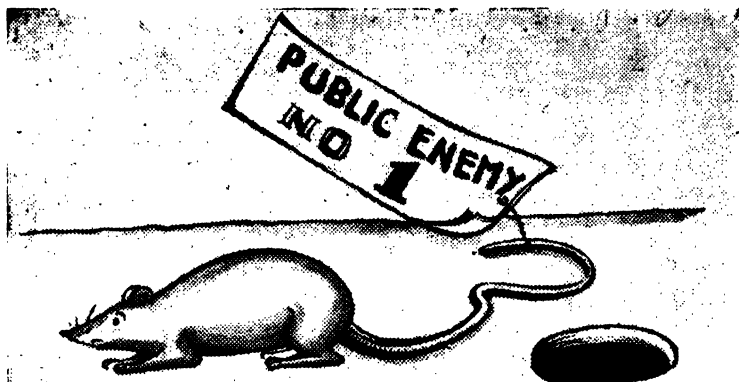
Nitrogenous fertilisers are applied as top dressing about 3 weeks after transplanting.

AFTER-CULTIVATION.

Onion is a fairly hardy and drought-resistant crop and, therefore, need not be over-irrigated after the first growth has commenced. Excessive irrigation results in unduly high succulence of bulbs which is not a desirable feature from the point of view of keeping quality. However, the plants must be kept growing. Early in the season, the growth is particularly rapid and if it is checked temporarily owing to shortage of water, the outer scales appear as if matured. When irrigation is again given, the inner scales resume growth, thereby splitting the outer ones. This is one of the primary causes of splits and doubles when onion is grown under irregular irrigation. During the dry period, the fifth and subsequent irrigations till the crop attains maturity are given at an interval of 7 days in light loamy soils and 10 days in clay loam soils.

Other chief requirements are frequent stirring of the surface soil and removal of weeds, care being taken to avoid damage to the feeding roots. On account of close planting, bullock intercultivation is not possible. In the case of the ridge and furrow method the ridges and furrows, and in the case of flat beds the surrounding bunds, require to be periodically repaired. If the surface soil is rendered too compact by the beating action of heavy rain, it should be loosened by breaking the crust by means of a rake or weeding hook.

The crop finishes vegetative growth in about $3\frac{1}{2}$ months of transplanting and soon after this the flowering tops known as "poles" begin to appear. For a bulb crop the growth of poles is not to be encouraged as the nutrition available to bulbs is thereby diverted to the rapidly growing poles. The poles are therefore cut off soon after they appear and, to prevent their growth in the case of other plants, the necks of the plants are pressed down by running a wooden plank over the field. If the area under cultivation is small, the necks of plants can be pressed under human feet. The pressing down of necks also helps in quick ripening of the bulbs. Irrigation is stopped at this stage and the bulbs are allowed to ripen under dry conditions. When the leaves, after turning yellow, begin to droop and when the outer



The Disastrous Rat!

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skins of the bulbs appear dry, the crop is considered ready for harvest. It is not desirable to allow the crop to stand on the land for any length of time after the tops have died as the bulbs are then damaged by exposure to sun or they are likely to be ruined by a spell of wet weather. The interval between transplanting and harvesting ranges from $4\frac{1}{2}$ to 5 months.

HARVESTING.

The crop is harvested by uprooting by hand the mature plants with the bulbs. As the onion bulbs are very close to the surface soil and as they are very shallow-rooted, no difficulty is experienced in harvesting by this method. After uprooting the bulbs, the roots and the leaves should be cut off and the adhering earth removed. Loose, thin, outer papery scales should also be removed. Bulbs that have been damaged or are bifurcated should be separated. They are then thinly spread under shade and allowed to dry. Care must be taken to guard against bruising while handling the bulbs. They should be kept in as cool and dry a place as possible.

YIELDS.

The average fair yield of this crop in Nasik and Poona Districts is 13,000 to 20,000 lb. per acre. When the crop is badly attacked by pests, the yield is much below the average. Under good cultivation and when the crop is free from a severe attack of pests, the yield easily ranges from 25,000 to 40,000 lb. per acre.

STORAGE.

As the onion is in demand throughout the year and as it is capable of successful storage with proper care and precaution, it offers an opportunity for the producer to realize his best price after the glut of the harvesting season is over. The Indian farmer, however, does not himself undertake the storage of onion as a local dealer is almost always available to purchase his crop immediately after harvest. It is the dealer who takes up the business of storage.

Onions can be stored with minimum loss in large quantity if they are kept in a dry, cool and well-ventilated place. Special storage houses prepared from grass thatchings are constructed by wholesale onion dealers. The walls of these storage houses are made of split bamboos with vacant spaces between them so as to admit ample circulation of air.

Thick necks or those that are not fully matured and are soft should not be brought for storage along with other good bulbs. Satisfactory drying to drive off unduly high moisture content is quite essential before successful storage. Drying of the outer skin to a fine papery texture and the feeling of brittle touch are indications of satisfactory drying. A serious trouble of wet rot will spread if insufficiently dried onions are taken to the storage house. There is considerable loss in storage due to drying of bulbs as well as to damage caused by rotting. In Bombay, this loss sometimes amounts to from 25 to 40 per cent. during a storage period of six months, but it is amply compensated by high prices obtainable off season. On account of the relatively low maximum temperature prevailing in most parts of Ceylon, the storage losses are likely to be comparatively low in Ceylon.

Onions should not be heaped too high in stores but should be

thinly and evenly spread allowing free circulation of air. Bulbs when kept on racks made close together will economize storage space and will be stored better. For short periods bulbs are sometimes stored in gunny bags in well ventilated places. The storage houses require to be periodically examined to sort out and remove the rotten bulbs.

PESTS.

The crop is chiefly liable to an attack of thrips which crowd on the surface of the leaf and suck the sap. This results in appreciable loss in the vitality of the plant, and leaves become white-spotted, curl and die. This trouble appears to be responsible for interfering with the physiological processes concerned with the development of the bulb and hence the yield is directly affected. The attack which largely depends on the climatic conditions is not of an equal magnitude in all the years. In mild form it does not cause serious reduction in yield. A severe attack, however, reduces almost by half the yield of an apparently promising crop. The attack of thrips can be controlled to some extent by the timely spraying with nicotine sulphate solution. A heavy shower of rain washes away a large number of thrips and the crop then improves.

HINTS.

THE BETTER WAY TO THIN THE VEGETABLE ROWS.

THINNING is one of the most important jobs on the vegetable gardener's programme—and it must not be thinning at any time and in any way. Whatever the crop action must always be taken early enough to relieve congestion and you should follow the thinning method which long experience has proved to be the best.

It is important, for example, to bear in mind that a crop which looks very well to-day may a week hence have put on quite a different face. Insect pests may mutilate it or there may be a serious weather check. Bearing these things in mind, the prudent thinner never thins to the final distance on the first occasion.

Where, for instance, the final distance is 12 ins., the seedlings, at the first thinning, are reduced to groups of three at 6 ins. apart. A week later alternate groups are taken out and a week later still the seedlings in the groups that remain are reduced to one.

The ideal time for thinning is in showery weather. Growth is then very succulent and yielding and the surplus plants, on being drawn out, offer no resistance.

It is not always possible, however, to wait for showery weather. If that should be so, thoroughly soak the soil the day before with the watering can. If it is caked stir between the rows with a Dutch hoe and amongst the seedlings with a hand fork.

When thinning work astride the row. Bend over and grip the unwanted seedlings as near the ground level as possible. Do not pull up too many at once, as this will result in serious dislocation of the plants left.

After thinning, collect and burn the superfluous seedlings which if left lying about will provide a harbour for slugs.

Immediately after thinning firm the soil around the permanent plants. This is very important, as it re-establishes root contact with the soil.

A. T.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

THE Centenary of the Royal Agricultural Society in England was observed this year at Windsor Great Park.

Our Society was asked to send delegates to represent us and three invitations were received.

Unfortunately no member of the Board could be in England during the time of the celebrations and Mr. W. DeM. Clarke, a Direct Member who takes a lot of personal interest in the affairs of the Society was selected to be our representative.

The letter published below is an informal report which has been received from Mr. Clarke.

THE LETTER.

I duly received your authority dated 12th June, under reference 802, AT/L, as regards the Centenary Show of the Royal Agricultural Society of England and wish to thank you for your kind attention to the matter in question.

You may be interested to hear of my visit to the Show which was held at Windsor Great Park. I motored down from London on Wednesday, 5th July, with my wife and my father who is a life member of the Royal Agricultural Society. The roads approaching Windsor were crowded with traffic and the last two miles had to be done at a snail's pace.

When we entered the Show my wife and I called at the pavilion set aside for Overseas visitors and were most kindly received by the Reception Committee which included Lady Weigall, Mr. Simpson and others. H. M. the King accompanied by the Queen paid their first visit to the Show that day and we were invited to await their arrival for lunch and were taken to the lawn outside the Royal Pavilion and so were in an excellent position to see their Majesties arrive in a semi-State Landau drawn by the Windsor Greys. It was all most impressive and no one had a better view than we did as we were so close to where the Landau drew up.

After that we were invited to lunch with the Director of the Show whose dining room was in the Royal Pavilion. Needless to say we were most hospitably entertained and met a number of very charming people closely connected with the Society. Oddly enough a lady sitting next to my wife turned out to have lived for some years in Montego Bay up to 1937.

After lunch we went to see the parade in the show ring of all the prize winning cattle. It was a most impressive sight and it took a full hour to parade the whole lot. Every recognised breed in England was represented and the quality was very notable. There were very big entries in the Short Horn, Herefords, Friesian, Ayrshire, Jersey and Guernsey classes.

This parade was followed by that of teams of draught horses which were splendidly turned out. Another interesting spectacle was a parade of ancient horse-drawn vehicles with the drivers, passengers, postilions, etc., dressed in period clothes. A musical ride by the Life Guards and a display by the Garter Foxhounds followed, both of which were most enjoyable.

During the afternoon, my wife and I met Lady Denham who I am sorry to say has been forced to carry her right arm in a sling for some considerable time.

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Harbour Street, Kingston.

We were most hospitably entertained to tea in the Stand of Messrs. Cooper, McDougall and Robertson Ltd., who had a most interesting display in a big stand close to the main show ring. We met their export manager, Mr. Waller, who paid a visit to Jamaica 2 or 3 months ago.

Later we visited a number of stands of various firms exhibiting at the Show and it is difficult to give a description of all of those as there were so many and all most interesting. I only wish it had been possible to pay a second visit to the show as there was so much to be seen and all very well organised. I cannot say too much for the excellent way in which we were treated by the Committee looking after the reception of Overseas Visitors and in particular Mr. Simpson.

Before concluding, I would like to take the opportunity of tendering my very best thanks to Mr. Seymour Seymour and yourself for having arranged that the Jamaica Agricultural Society should be represented by me on this occasion and to tell you how much I have appreciated the honour and how I enjoyed the show.

Please forgive me for having written at such length, but I think you will be interested to hear of our experiences and what we saw.

With kindest regards and renewed thanks,

(Sgd.) W. DEM. CLARKE.

OUR PRODUCTS IN THE SOUTHERN DOMINIONS.

MAJOR G. B. Pease, once a member of the Board of Management and a very active member of the Society, who is now holidaying in Australia, has sent us the following interesting letter with regard to annatto and rum and the sale of our fruit in New Zealand and Australia:

"I am at present travelling in New Zealand on my way to Australia.

Yesterday I had the good fortune to visit what is I believe almost the biggest Rennet factory in the world; they also make and sell dye which is used for colouring the cheese and butter exported from New Zealand. I was intensely interested to discover that this dye was made from Annatto, imported direct from Jamaica. I saw the whole process and the stacks of Annatto seed bags lying in the factory all bearing the mark "Produce of Jamaica" and the initials L.M. which I believe is Lascolles de Mercado. But what troubled me very much was to learn that one of the principals of this firm had recently been to Java where he found that they were beginning to grow annatto in large quantities *with seed obtained from Jamaica* with the ultimate object, of course, of cutting us out of this market. Can you possibly bring this to someone's notice. I know that the annatto trade is only a small side issue, but we can ill afford these days to lose *any* of our exports. I do hope you can urge those interested in this trade to do all in their power to prevent it passing into the hands of the Dutch!

I have seen some of our oranges on sale in the shops. They are all wrapped in the paper, samples of which are enclosed. I want to tell you that these papers do not advertise the fact that the oranges are *Empire* grown sufficiently. I know you will believe that I am serious when I say that the word "Jamaica" does not necessarily convey the fact that the fruit comes from a portion of the *Empire*. I know it will sound incredible to many who have never left the shores of Jamaica that our island or its whereabouts is often unknown or even if it has been heard of it is confused with Java (they both begin with "Ja") and certainly in these parts of the world the West and East Indies are always muddled up. The New Zealanders are an intensely loyal people and I am suggesting that the paper should be printed "Empire Fruit grown in Jamaica, B.W.I." I can see the words "Empire Fruit" already on the paper, but they should surround the word "Jamaica" as at present when displayed in the shops they can't be seen. I am quite sure that if the fact that the oranges came from a part of the *Empire* was emphasized it would materially help their sale in this Dominion.

Incidentally I may say that the paper with the one word "Jamaica" on it is very similar to that in which "Sunkist" are wrapped and might easily appear as simply another variety of American orange to the ignorant. I wonder if this paper has been printed in the U.S.A.

I hope things are going as well as can be expected in Jamaica.

I would also like to draw your attention to the Rum that is sold in the leading hotels here. It is called "Lowndes West India Rum" shipped by Thomas Lowndes & Co., Ltd., of London and the agents here are Harbottle Brown & Co. Ltd., of Sydney. It is very inferior. It looks and smells like a mixture of red ink and mud with a little methylated spirit to liven it up. I really don't know what can have been done or from where it can come, but as Rum is usually associated in the common mind with Jamaica I feel sure the sale of such stuff can do us no good. Couldn't someone interested in the rum sale (Mr. Kerr Jarrett for instance) find out what is going on and get some of our good rum sold here. Have we no agents in Australia? The only other rum on sale is either from the French Islands or Baccardi.

With all good wishes."

(Sgd.) G. B. PEASE,
Sydney, Australia,
3/6/39.

HOG SICKNESS.

HOG Sickness has been very prevalent in various districts recently and in view of this the following report by the Senior Veterinary Officer with regard to a reported outbreak in the Frankfield area will be interesting:

"With reference to your report of July 17th consequent on telegram as follows from Instructor Thompson:—

"PIGS HAVE BEEN DYING. SAW TWO OF THOSE STRICKEN. APPEARS TO BE SWINE FEVER. CROOKED RIVER AREA."

1. I received in addition on the same day a letter from Plant Disease Inspector, C. J. Bewley, of Crooked River, confirming the mortality among swine around Frankfield and Crooked River and relating his own losses.

2. In view of the above I visited Mr. Bewley's the next day where I found 3 sick shoats that he said were typical of the cases affected with the prevalent "hog sickness" of the area.

With his permission I killed and autopsied one of the shoats and found an extensive ulceration of the lower intestine which clinically suggests hog para-typhoid rather than hog cholera (swine fever).

I also autopsied a small shoat of his next door neighbour (railway gate keeper) which had died in the early forenoon. This second case showed the same general ulceration of the lower intestine as well as small areas of incipient pneumonia.

Mr. Bewley gave me one of his two remaining sick shoats which I brought to Hope that evening (18th). This animal died yesterday (20th) and also showed the same type of general ulceration of the lower intestine when autopsied.

I have on these observations made a provisional diagnosis of hog para-typhoid also known in U.S.A. as Necrotic Enteritis (a bad name) or Cascous Intestinal Inflammation.

3. This disease so closely resembles swine fever (hog cholera) that I have inoculated a pig for differential diagnostic purposes and must await developments.

4. I have already reported to you of my visits to Victoria, Thompson Town on 20/6/39, and Frankfield 4/7/39 regarding reports of "hog sickness." On both these occasions I was unable to obtain any dead or killed hogs for autopsy examination and consequently my visits were virtually futile.

The visit to Mr. Bewley's is very instructive and helpful, and I hope soon to establish a more definite diagnosis of the "sickness."

5. If, as I expect, the diagnosis is hog para-typhoid or necrotic enteritis there is hope that in future a satisfactory commercially made vaccine may be obtained as a preventive agent.

The organisms associated with this disease are ubiquitous in soil and water and usually are non-infective to swine, unless they are subject to sudden changes of feed, weather or other debilitating conditions such as transportation, heat, continued drought, etc.

(Sgd.) S. LOCKETT,
Sr. Vet. Officer.
21/7/39.

LIVESTOCK IN THE WEST INDIES.

By J. W. Howe, Dip. Ag., B.S.A., M.Sc., Headmaster Government Farm School, Superintendent Government Stock Farm.

(Continued).

The Neck.—The neck of the beef animals should be short and thick, and well blended into the shoulder, showing no indication of roughness or coarseness. In the case of the bull, the neck should show a distinct crest, and the head should be slightly higher than the shoulders. The throat should not show flabbiness, or loose flesh.

The Shoulders.—This part of the beef animal should be compact and smooth, blending well with the body. The top of the shoulders should not be open, but well covered with flesh, and should be wide, an indication of constitution.

The Brisket.—This part of the animal is located just in front of the forelegs and should be full, but neat and trim. The brisket should carry well forward and should be well fleshed. This part assists materially in giving the animal a low-set blocky appearance.

The Chest.—The chest is located just behind the front legs, and should be deep and wide. There should be no indication of slackness in the heart girth, as this is a sign of lack of constitution. Depth and width of the chest is an important point in the beef animal.

The front legs.—Constitution is an important feature of beef animals, and the legs should be short and set wide apart, to allow for ample room for the chest and heart-girth.

The Body.—Since the most important cuts of meat come from the body and hindquarters, it is necessary that the ribs be well sprung and carried well down in order to make a wide back and deep body. The fleshing over all parts of the body should be deep, and well laid on. Patchiness over any part of the body is objectionable in a beef animal.

The Loin.—This part of the animal is located just in front of the hips, and should be wide and thickly fleshed.

The Hips.—Should be well laid in and smooth, and should be well covered with firm flesh.

The Rump.—As it is from the rump and hindquarters that the best cuts of the animal come, it is necessary that the rump be long and level, and show plenty of width. The fleshing should be smooth, with no indication of patchiness, especially around the tail-head.

The Thighs.—The thighs of the beef animal should be wide, and well fleshed with the fleshing carried well down to the hock.

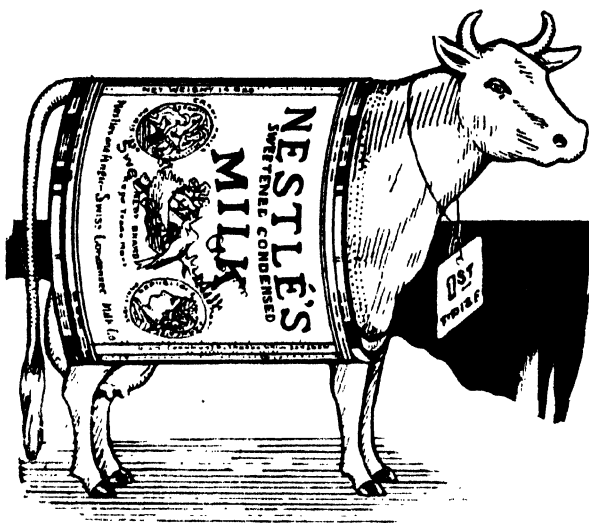
The Twist.—The twist is located between the hind legs, and in the beef animal it should be wide and deep, with fleshing carried well down.

The Hind Legs.—Should be wide apart and well fleshed. They should be straight, with a good quality of bone.

Quality.—Quality is shown by the hair, which should be fine and plentiful; the bone, which should not be too large or heavy, and the hide which should be pliable and mellow.

Condition.—Condition in the beef animal refers mainly to fleshing, and is shown by the fatness of the animal. Condition can be determined by examining the shoulders, which should be firm and not open, the tail-head which should be smoothly covered with firm flesh, and the cod in the case of a steer, which should be fat and full.

Fleshing is a very important point in judging beef animals, and not



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MANCHESTER.

PORTLAND.

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not only shows the condition in which the animals, are, but it also shows whether or not the animal has a tendency to put on flesh in patches.

Judging the Beef Cow—In general outline the beef cow should conform to the points previously outlined for beef cattle generally, but in addition, the breeding beef cow should have a distinct femininity required of all breeding females. She should have plenty of width between the pin bones, and should show sufficient mammary development to insure that she is capable of producing enough milk to properly raise her calf. She should above all be a regular breeder, and she should be a good specimen of the breed which she represents.

Judging the Beef Bull—In addition to the points out-lined for beef cattle, the beef bull must show masculinity, and a stronger conformation than either the beef steer or the beef cow. Masculinity is shown by a crest over the neck, and a ruggedness of the head and fore-quarters. The beef bull must above all be a good specimen not only of the beef type, but also the breed he represents, and must be a regular breeder. In selecting a bull for breeding, it is advisable to select one which has already sired calves, as the calves are the best indication of a bull's ability to transmit his characters to his offspring.

(To be continued.)

LAND SETTLEMENT—PARISH COMMITTEES.

IN order to assist the development of Land Settlement, Government has appointed Land Settlement Parish Committees.

These Committees consist of the Custos of the Parish, the member of the Legislative Council, two planters and one representative of the Society.

The following are the gentlemen appointed for the various parishes:

ST. ANDREW.

The Custos, Chairman.
The Member of the Legislative Council.
Mr. T. N. Duval, Gordon Town.
Mr. A. P. Hanson, Stony Hill.
Mr. F. N. Isaacs, Half-Way Tree.

ST. THOMAS.

The Custos, Chairman.
The Member of the Legislative Council.
Mr. R. A. Burke, Llandewey.
Dr. T. M. Bartlett, Trinity Ville.
Mr. A. H. Robertson, Bath.

PORTLAND.

The Custos, Chairman.
The Member of the Legislative Council.
Mr. W. Harper Watson, St. Margaret's Bay.
Mr. F. M. Jones, Hectors River.
Mr. Wm. Orrett, Buff Bay.

ST. MARY.

The Custos, Chairman.
The Member of the Legislative Council.
Mr. C. L. A. Stuart, Pembroke Hall.
Mr. S. M. Walker, Highgate.
Mr. J. Hutton Jefferson, Lucky Hill.

ST. ANN.

The Custos, Chairman.
 The Member of the Legislative Council.
 Mr. C. O. Cover, Brown's Town.
 Mr. Alex. Gordon, St. Ann's Bay.
 Major Claude Roper, Moneague.

TRELAWNY.

The Custos, Chairman.
 The Member of the Legislative Council.
 Mr. H. L. Arnett, Falmouth.
 Mr. A. E. Muschett, Duncans.
 Mr. Frank Roxburgh, Bunkers Hill.

ST. JAMES.

The Custos, Chairman.
 The Member of the Legislative Council.
 Reverend D. A. Morgan, Welcome Hall P.O.
 Mr. T. A. Reid, Lottery.
 Mr. C. G. Scudamore, Montego Bay.

WESTMORELAND.

The Custos, Chairman.
 The Member of the Legislative Council.
 Mr. A. C. Barnes, C.M.G., Grange Hill.
 Dr. J. W. N. Hudson, Darliston.
 Mr. Theodore Williams, Montpelier.

ST. ELIZABETH.

The Custos, Chairman.
 The Member of the Legislative Council.
 Mr. H. W. Lynch, Nain P.O.
 Mr. C. H. A. Iver, Malvern.
 Mr. L. Densham, Santa Cruz.

MANCHESTER.

The Custos, Chairman.
 The Member of the Legislative Council.
 Mr. D. D. Phillips, Williamsfield.
 Mr. W. G. McCausland, Mandeville.
 Mr. Chas. H. Shiletto, Christiana.

CLARENDON.

The Custos, Chairman.
 The Member of the Legislative Council.
 Mr. U. Theo. McKay, Frankfield.
 Mr. T. Harty, May Pen.
 Mr. I. B. Fox, May Pen.

ST. CATHERINE.

The Custos, Chairman.
 The Member of the Legislative Council.
 Mr. T. P. V. McDaniel, Bog Walk.
 Mr. J. P. McPhail, Bog Walk.
 Mr. Allan Campbell, Spanish Town.

The Land Settlement Officer for the district is Secretary of the Parish Committee.

BRANCH NOTES.

CLARENDON: Grantham; Grantham P.O.—Meeting held 10.5.39. Present: Mr. Francis Smicle, President; Mr. Jno. S. Anderson, 3rd Vice-President; Mr. J. A. Graham, Instructor; the Secretary, many members and two visitors. The President addressed the meeting. Correspondence was read and dealt with. The Instructor gave an address. Authorized Persons reported one arrest. A special meeting was arranged to be held on 17th May to deal with an outing. The Branch was requested to take part in the Spaldings 'Fur and Feather' Show to be held on 1st August. The singing of the National Anthem brought the meeting to its close.

S. AUG. THOMAS,
 Secretary.

Stewarton : Mocho P.O.—First annual meeting held 2.5.39. At the inaugural meeting of the Branch on June 15, 1938, 57 members had been enrolled. There were now 97 members. Throughout the year educative addresses had been given. Supervisor Hanson had visited the Demonstration Plot, the land for which had been given by Mr. C. McKenzie, a member of the Managing Committee. Tomatoes from this plot had been sent to the C.B.A. Exhibition, and the Branch had been awarded a fork. A Nursery Committee had been appointed. Instructor Virtue and Foreman Harris had given invaluable service.

(Miss) I. I. O'REILLY,
Secretary.

HANOVER : Chester Castle; Chester Castle P.O.—Meeting held 25.5.39. Present : Instructor Hastings, Messrs. W. J. Samuda, 1st Vice-President; S. H. Lewis, 2nd Vice-President; A. B. Spence, 3rd Vice-President; the Secretary, Asst. Treasurer, 8 members and 2 visitors. Mr. S. H. Lewis, one of the four delegates to the Half-Yearly meeting of the Associated Branches, gave a short account, emphasizing Mr. Williams' lecture on the control of Leaf Spot disease. A Price List of fruits, vegetables and ground provisions with full instructions from the Parent Society was read, also a Circular re delegate to the Half-Yearly General Meeting. The Instructor gave a helpful talk on the proposed working of the new Marketing Depôts. The Secretary was instructed to send copies of a Resolution re a District Nurse to the Hanover Parochial Board, the Parent Society, and the Medical Department. Three new members were enrolled. The meeting stood adjourned.

(Miss) M. V. VIRGO,
Secretary.

MANCHESTER : Devon Potato Growers' Association; Devon P.O.—Annual meeting held 5.5.39. Instructor J. A. Graham, 11 members, and Mr. A. J. Hay, President, were present. Correspondence included a letter from the Secretary of the Fur, Feather and Hair Club inviting the co-operation of this Branch for the proposed Show to be held in August. The members pledged their support. The Secretary's and Treasurer's Reports for the year were presented and adopted. Election of officers : President, Mr. A. J. Hay, re-elected; 1st Vice-President, Mr. H. A. Mendez; 2nd Vice-President, Mr. C. W. Embden; 3rd Vice-President, Mr. Percy Lewis; Secretary and Treasurer, Miss J. I. Robinson, re-elected; Assistant Secretary, Mr. T. O. Morris. The Authorized Person reported "all correct." A definite plan of work was outlined for the ensuing year. The Instructor suggested a Potato Growing Competition to stimulate the industry and awaken interest in the Branch. This met the approval of the members, who decided to prepare for this competition next Spring. The suggestion was also made and agreed to, that each member submit at the next meeting a plan of some activity for the year's programme. Messrs. E. Embden, G. P. Bourne and Mrs. K. Waite were named as delegates to represent the Branch at the Half-Yearly meeting of the Manchester Branches Associated to be held at Grove Place Farm. The meeting adjourned.

(Miss) J. I. ROBINSON,
Secretary.

Mandstone : Maidstone P.O.—Meeting held 23.5.39. Present : Rev. J. A. Black, President; Messrs. Thos Roberts, 1st Vice-President; Omri Frith, 2nd Vice-President; Mr. Blythe, Overseer of Somerset Land Settlement, 12 members and 18 visitors. The President asked Mr. Blythe to speak. His theme was the formation of a Co-operative Growers' and Marketing Association in conjunction with the Branch. The members of the Branch agreed, and after a thorough ventilation of the various points, the Association was formed as follows : The Executive Officers of the Branch to be officers of the Association together with Mr. Ebenezer Roach as Assistant Secretary to Mr. D. C. B. Ramsay. 18 members were enrolled. There was much enthusiasm displayed as the growers realized there would be a ready market for their products. The meeting closed with the singing of the National Anthem.

D. C. B. RAMSAY,
Secretary.

Mizpah : Walderston P.O.—Annual meeting held 15.5.39. Present : Gathering over 60, including Rev. J. Kneale, Mr. C. D. Neilson, I.S.O., J.P., and J. T. Morrison, Esq., (Chantilly School). Officers,—Instructor J. A. Graham, Mr. P. St. L. Bacroile, Mr. L. A. Powell, Superintendent Grove Place, and Mr. Lecky. Report of Exhibition held 10/4/39 and the Treasurer's Report were adopted. Election of officers : President,—deferred pending arrival of Rev. P. E. Holmes; 1st Vice-President, Mr. J. T. Cousins; 2nd Vice-President, Mr. H. Frazer; 3rd Vice-President, Mr. J. McKenzie; Treasurer, Miss J. E. White; Secretary, Mr. E. W. Roberts; Asst. Secretary, Miss A. A. Daley. Messrs. J. T. Morrison, W. Robinson and J. Lake were appointed delegates to the half-yearly meeting.

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M.B.A. Mr. L. A. Powell advised on the selection of seeds and live stock. Mr. Baquie in his address referred to the great development of the tomato industry in South Manchester and St. Elizabeth. He showed a sample tin of tomato soup prepared in the factory. Instructor Graham spoke on Poultry Rearing. There was a presentation of an address and purse from members to Rev. Kneale in appreciation of the whole-hearted services rendered by him to the Branch. The King.

E. W. ROBERTS,
Secretary.

Old England: Old England P.O.—Annual meeting held 25.4.39. Present: Mr. H. L. Blackwood, President; Mr. G. Trew, 2nd Vice-President; 13 members, two visitors, the Secretary, Mr. C. P. Watson and Miss M. Sinclair, Assistant Secretary. The growing of tomatoes in Southern St. Elizabeth and Southern Manchester was referred to. Correspondence re road and A.P.s was dealt with. The reports of the Secretary and Treasurer were read and accepted. Election of officers: Mr. H. L. Blackwood, re-elected President; Mr. E. B. R. Jackson, 1st Vice-President; Mr. H. J. Pinnock, 2nd Vice-President; Mr. E. Johnson, 3rd Vice-President; Mr. C. P. Watson, re-elected Secretary and Treasurer; Miss M. Sinclair, re-elected Assistant Secretary. Several new members were enrolled. The singing of the National Anthem brought the meeting to a close.

C. P. WATSON, Secretary.

Porus: Porus P.O.—Annual meeting held 3.4.39. All the officers were present. Visitors were Revs. B. M. Thorp and E. A. R. Haughton, and Mr. E. N. Burke, Secretary Jamaica Welfare Ltd. Officers elected Messrs. T. Joseph, J.P., President; J. A. Turner, 1st Vice-President; T. N. Davis, 2nd Vice-President; A. J. Anderson, 3rd Vice-President; C. Rowland, Secretary; Thos. Brown, Asst. Secretary; Mrs. E. S. Miller, Treasurer. Correspondence was read. The Instructor spoke of a Citrus Nursery Competition. The President offered a prize of two guineas. A committee was named to draft rules for the competition. The Instructor spoke on the cultivation of cabbage. The meeting terminated with the singing of the National Anthem.

C. ROWLAND,
Secretary.

Royal Flat: Williamsfield P.O.—Meeting held 14.6.39. There was a splendid turn-out of members, also N. Nash, Esq., President; and E. A. Peart, Esq., Agricultural Headman. Election of officers for 1939-40. Reports for the year from the Secretary, Treasurer and Authorized Persons showed progress. Report of the delegate to the half-yearly meeting at Grove Place was read. There was a discussion on vegetable culture and sweet potatoes. Many useful points were brought out. Ways and means of enlivening the meetings were debated. Arrangements were started for the local Show to be held in December. The meeting closed with the National Anthem.

H. LISTER JOHNSON,
Secretary.

PORTLAND: Bangor Ridge; Bangor Ridge P.O.—Annual meeting held 4.5.39. Present: the President, Mr. L. E. Dillion; 9 members, many visitors and the Secretary, Mr. G. A. Barnes. The Secretary's and Treasurer's reports were read and adopted. A hearty vote of thanks was conveyed to these officers. The President delivered his retiring address. He stressed the importance of co-operation. Election of officers: Mr. L. E. Dillion, re-elected President; Messrs. Wm. Barnes, N. Smith and P. Parks, First, Second and Third Vice-Presidents, respectively; Mr. G. A. Barnes, re-elected Secretary; and Mr. N. Allen, Treasurer. Managing Committee: Mr. G. T. Barnes, Mr. Adrian Allen and the other officers of the Branch. Addresses were delivered by Messrs. J. O. Grant of the Mahoe Branch, J. Paterson of Balcarres, W. Manhertz, N. Smith and G. A. Barnes. Correspondence was read. The meeting terminated with the singing of the National Anthem.

GEORGE A. BARNES,
Secretary.

Craigmill: Buff Bay P.O.—Annual meeting held 3.5.39. Present: Messrs. A. A. Palmer, and D. E. Baugh, 2nd and 3rd Vice-Presidents, respectively; 7 members and the Secretary, Rev. T. Lawrence. The meeting was presided over by the 2nd Vice-President. The Secretary's and Treasurer's Reports were presented and adopted. Election of officers: Mr. L. T. Lawrence, President; Mr. A. A. Palmer, 1st Vice-President; Mr. Joseph Harriott, 2nd Vice-President; Mr. D. E. Baugh, 3rd Vice-President; Rev. T. Lawrence, Secretary. Mr. Arthur Lowe and the Secretary addressed the house re the proposed Show to be held in 1940. Messrs. Arthur Lowe and S. A. Morris gave reports of the recent lecture in Buff Bay on the growing and curing of Tobacco by the Tobacco Expert. They were thanked. The marking of the roll, and "the King" terminated the meeting.

(Rev.) T. LAWRENCE,
Secretary.

Panton—Mt. Pleasant : St. Margaret's Bay P.O.—Meeting held 27.5.39. Present : Messrs. J. E. Eubank, President; E. Burke, 1st Vice-President; Chas. Anderson, 2nd Vice-President; Arthur Davis, 3rd Vice-President; V. Z. Brown, Treasurer; Hazael B. W. Bunting, Secretary; and 14 other members. Instructor Graham gave a very inspiring address on "The Aims and Objects of the Society." He was thanked. Four new members were enrolled.

HAZAEI B. W. BUNTING,
Secretary.

ST. ANDREW : Dallas and Constitution Hill; Dallas P.O.—Meeting held 2.6.39. Present : Mr. C. Headad, President; Messrs. J. Catwell, 1st Vice-President; W. G. Nix, 2nd Vice-President; E. Shaw, 3rd Vice-President, and the Secretary. The election of officers resulted in a general re-election, except that Miss Florence Josephs was elected Asst. Secretary. Correspondence was read and dealt with. The following delegates were appointed to the meeting of the Associated Branches : Messrs. J. Catwell, W. G. Nix, and J. E. Shaw. It was decided that the Secretary should forward a resolution to the meeting. The meeting terminated with the singing of the National Anthem.

Z. BARCLAY,
Secretary.

Rock Hall : Red Hills P.O.—Annual meeting held 5.6.39. Present : Mr. E. J. Gregory, President; Mrs. B. Heslop, Secretary, and 7 members. The house stood for five minutes in respect of the late Instructor Henderson, who had worked in the District. His work stood as a tribute to his usefulness. Fees were paid by members. Two delegates were elected to the meeting of the St. Andrew Branches Associated. Resolutions were prepared for this meeting. Correspondence was read and dealt with. All officers were re-elected. The singing of the Doxology ended the meeting.

(Mrs.) B. HESLOP,
Secretary.

ST. ANN : Brown's Town; Brown's Town P.O.—Meeting held 14.4.39. There was a fair turn out of members among whom were Messrs. L. W. Levy, President; C. M. Robotham, Instructor; G. T. Brown, Treasurer; and C. D. Miller, Secretary. The Secretary's annual report and Treasurer's financial statement were read and adopted, after which the election of officers for the ensuing year was proceeded with. Delegates to the annual meeting of the St. Ann Associated Branches were chosen. The President welcomed Mr. Hugh Miller, an officer of the Department of Science and Agriculture, and asked him to address the meeting. Mr. Miller spoke on the incidence of the Leaf Spot disease of Bananas and the resulting set-back to that industry. He encouraged his hearers to cultivate vegetables, which, if properly done, would prove very profitable. He reminded them that the Marketing Division of the Department of Agriculture was willing and ready to help in this direction. At the close of this address, questions on the same subject were asked by members and answered to their satisfaction. The meeting terminated.

C. D. MILLER,
Secretary.

Hiattsfieid : Ocho Rios P.O.—Annual meeting held 10.5.39. Present : Mr. B. Moncrieffe, 1st Vice-President; Instructor Atkinson; the Secretary, Mr. W. R. Green; the Assistant Secretary, Mr. L. Coombs, and a large number of members and visitors. There was a lengthy discussion of the ram. Members decided to purchase a coffee pulper. A.P.s reported "all correct." The Secretary read the annual report of the Branch. The Treasurer's statement was accepted. Election of officers : Mr. B. S. Moncrieffe, President; Mr. Aaron DaCosta, 1st Vice-President; Mr. J. S. Forrest, 2nd Vice-President; Mr. W. R. S. Green, Secretary; Mr. L. Coombs, Assistant Secretary; Mr. A. H. Wilmot, Treasurer; Mr. I. S. Bryan, Reporting Secretary. Mr. C. A. Stuart addressed the meeting. The singing of the National Anthem terminated the meeting.

I. S. BRYAN,
Secretary.

Iron's Mtn. : Claremont P.O.—Meeting held 8.5.39. Present : President; 1st Vice-President; 2nd Vice-President; Secretary; Mr. C. V. Atkinson, Instructor; 28 members and visitors. Discussion on the Growing of Corn was directed by the Instructor. Four delegates were appointed to attend the annual meeting of the St. Ann Branches Associated. Correspondence was read. Returns for the subsidized Ram were rendered by the Treasurer. Authorized Persons reported. Members were asked to support the Branch. A somewhat negligent member enumerated the good that the district, and he personally, had derived through the Branch. The King.

V. L. BERTON,
Secretary.

ST. CATHERINE: Bellas Gate; Bellas Gate P.O.—Meeting held 8.5.39. Present: Mr. G. E. Markland, President; Mr. M. Golding, 1st Vice-President; Mr. D. Shaw, 2nd Vice-President; Instructor Byles; Foreman Rhone; Secretary, Treasurer, and about 500 members and visitors. The following were dealt with:—(1) Land Settlement: The President advised members re applications. (2) Construction of Blue Hole Road: The Honourable Member's letter was read. (3) Authorized Persons: Three were present. The Instructor explained the duties of Authorized Persons. The Instructor gave an interesting address, and explained the conditions under which the Society purchases the foodstuffs of members. He encouraged increase of membership. Messrs. Shaw and V. McCalla rendered solos. The meeting ended with the National Anthem.

(Miss) G. M. FLETCHER,
Secretary.

Thompson Pen: Spanish Town P.O.—Special meeting held 10.5.39. Instructor Byles, Mr. A. Russell, J.P., and many others were present. The President mentioned Water Supply and Land Settlement as pressing requisites of the district. The Secretary referred to the possibility of tomato growing. Mr. Russell expressed his appreciation of the Society and promised to do what he could for the Branch. He was declared Honorary President. It was agreed that the Society be affiliated with the Associated Branches. The Instructor advised the rearing of poultry and the production of foodstuffs. Mr. Owen, President of Moreland Branch, and Mr. Bourne, President of Friendship Branch, spoke of the usefulness of Agricultural Societies. The meeting closed with the singing of the National Anthem.

A. F. GRAHAM,
Secretary.

Time and Patience: Linstead P.O.—Meeting held 9th May. Present: The President, 1st Vice-President, Secretary, Foreman McNichol, seven committee members, and a few visitors. Correspondence was dealt with. There was a discussion re a Field Day. Mr. McNichol encouraged the Branch to join the Associated Branches. He read a list of products purchased by the Society, quoting prices. He was heartily thanked for his advice. Miss Olive McNeil was elected Asst. Secretary. The President, 1st Vice-President, Messrs. J. Edwards and A. Rhoden, Miss O. McNeil and Mrs. J. Edwards, were elected as delegates to the half-yearly meeting at Bog Walk. The meeting stood adjourned.

(Miss) A. M. BOYD,
Secretary.

ST. ELIZABETH: Kilmarnock; Newmarket P.O.—Meeting held 25.5.39. There was a large turn out of members. Officers were elected to serve for the year 1939-40. Mr. J. E. Monteith presided. The Treasurer gave a brief report showing a balance of four shillings and eightpence. Messrs. J. E. Monteith and L. E. Scott were appointed delegates to the half-yearly meeting of the Associated Branches. Re the Half-Yearly General Meeting of the Society, the house decided it could not afford to send a delegate. The President appealed to members to co-operate to make this year's membership a record one. The meeting terminated with the National Anthem.

L. E. SCOTT,
Secretary.

Nightingale Grove: Newmarket P.O.—Meeting held 2.6.39. The President, Mr. N. W. Dixon, encouraged members to keep up the membership of the branch. The proposed visit of the Branch to Bull Savanna was discussed. It was decided to visit Grove Place on the 6th July, and to invite members of the Prospect and Middle Quarters Branches to join in the outing. Correspondence was presented and dealt with. Mr. Lewis was elected delegate to the Half-Yearly General Meeting. Re the purchase of the Berkshire Boar, the Secretary was requested to find out whether the Middle Quarters branch would be willing to join in the procuring of the animal. Mr. N. W. Dixon gave a comprehensive report of the annual meeting of the Branches Associated held at Santa Cruz, for which he was heartily thanked. Mr. Lewis exhibited some very fine potatoes reaped from his field, mentioning that 50 lb. had been planted and 572 lb. reaped. The soil had been carefully prepared. The Recruiting Committee reported three new members. Roll call showed 21 members present. Visitors and members of the Juvenile Branch were present. Fees were collected. The meeting adjourned.

(Miss) EDNA J. DOBSON,
Secretary.

Springfield: Springfield P.O.—Meeting held 5.5.39. Present: the Vice-President, Instructor, two visitors, Messrs. W. Brumley, and S. Black, the Asst. Secretary and the Secretary. There was a discussion re the Montgomery Bull. It was decided to ask Mr. Thelwell, Secretary of the Parent Society, to attend the Juvenile Show on the 20th July. A letter from the Secretary of the Branches Associated re the meeting at Santa Cruz was read. The Secretary's Report for the year

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ended 31st March was read and adopted. The Treasurer's Report, after having been audited by two members, was adopted. The Instructor asked that the attendance be improved. He informed the meeting that the J.A.S. and the Department of Science and Agriculture have a contract with the Government to supply the Institutions with provisions, and encouraged members to dispose of their products through these sources. A price list was read. The Instructor's address was highly appreciated. Members paid their subscriptions. The officers of the Branch were re-elected. The singing of the National Anthem closed the meeting.

U. K. WALTERS,
Secretary.

ST. MARY: Baxter's Mtn.; Annotto Bay P.O.—Annual meeting held 16.5.39. Correspondence was read. Election of officers: The President, Secretary and Asst. Secretary were re-elected. Messrs. Z. Strachan, H. Smellie and E. McDonald were elected 1st, 2nd, and 3rd Vice-Presidents, respectively. Authorized Persons H. Smellie and A. Strachan reported "all correct." Reports on Crops were made by members. Members promised to bring in new members. The meeting adjourned.

R. J. LAWSON RICKETTS,
Secretary.

Free Hill: Free Hill P.O.—Meeting held 27.4.39. Present: Messrs. J. W. Brown, President; D. I. DaCosta, 1st Vice-President; E. M. Anderson, 2nd Vice-President; E. Z. Rose; R. E. Anderson, Treasurer; N. B. Falconer, Secretary; and other members. The Treasurer and the Secretary presented their reports. There was a general discussion on the future of the Branch. All the former officers were re-elected: President, Mr. J. W. Brown; 1st Vice-President, Mr. D. I. DaCosta; 2nd Vice-President, Mr. E. M. Anderson; Secretary, Mr. N. B. Falconer; Treasurer, Mr. R. E. Anderson. Discussions on the growing of Irish potatoes and vegetables followed. National Anthem.

N. B. FALCONER,
Secretary.

Hampstead: Hampstead P.O.—Meeting held 12.5.39. Present: Instructor Coke, Mr. M. C. Roach, Secretary; Mr. T. D. Willis, Vice-President; and many other members. Mr. Coke gave a very interesting and instructive address in which he emphasized the planting of tobacco, corn and shade trees. He informed members that the Society would buy their foodstuffs. The meeting was brought to a close by the singing of the National Anthem.

R. E. GRANT,
Reporting Secretary.

Wallingford: Guy's Hill P.O.—Meeting held 2.6.39. There was a good turnout of members. The Instructor gave a very stirring address, in which he urged members to plant different crops, as there is now a ready market. The Election of officers was given attention. Roll Call. The meeting terminated with the singing of "the King."

L. A. HENRY,
Secretary.

ST. THOMAS: Whitehall; Seaforth P.O.—Annual meeting held 22.5.39. Present: Messrs. H. H. Watson, President; L. Donaldson, 1st Vice-President; W. Watson, 2nd Vice-President; W. E. Patterson, Treasurer; E. U. Edmondson, Secretary; Miss J. A. Boyd, Assistant Secretary, and 12 members. Election of officers: President, Mr. H. H. Watson, re-elected; 1st Vice-President, Mr. L. L. Donaldson, re-elected; 2nd Vice-President, Mr. T. A. Edmondson; Treasurer, Mr. W. E. Patterson, re-elected; Secretary, Mr. E. U. Edmondson, re-elected; Assistant Secretary, Miss J. A. Boyd, re-elected. The election of a Managing Committee was deferred for the next meeting. The proposed Show was postponed for the Spring of next year. The meeting was terminated with the singing of the National Anthem.

E. U. EDMONDSON,
Secretary.

TRELAWNY: Alps; Ulster Spring P.O.—Annual meeting held 17.5.39. Present: President, Mr. R. Bennett; Miss L. M. Edwards, Secretary; the Instructor; many members and visitors. The Secretary's and Treasurer's Reports were read and adopted. Election of officers: Mr. E. Christie, President; Mr. R. G. Simpson, 1st Vice-President; Mr. C. Ennis, 2nd Vice-President; Mr. P. Houston, 3rd Vice-President; Miss L. M. Edwards, Secretary; Mr. I. Campbell, Asst. Secretary, and Mr. R. Simpson, Treasurer. Three delegates were appointed to attend the meeting of the Trelawny Branches Associated. The Instructor gave a very inspiring address and thanked the officers who had served during the past year. The Secretary was instructed to make enquiries re a pedigreed Ram goat. The meeting terminated with the singing of "the King."

(Miss) L. M. EDWARDS,
Secretary.

Wakefield : Wakefield P.O.—Meeting held 7.6.39. Present : Mr. V. S. Barrette, 1st Vice-President; Miss M. E. Gilchrist, Asst. Secretary; 20 members, 10 visitors, and the Corporal of Police. Mr. V. S. Barrette, delegate to the Half-Yearly Meeting of the Trelawny Branches Associated, gave his report. He was thanked. Two Authorized Persons reported. Four new members were enrolled. The meeting adjourned with the singing of the National Anthem.

M. E. GILCHRIST,
Secretary.

Waldensia : Sherwood Content P.O.—Present : The President, two Vice-Presidents, the Secretary and 20 other members. Matters dealt with were : (a) Correspondence re Half-Yearly General Meeting; (b) Letter from the Parochial Board re New Forest property and River Hill. (c) Delegate appointed for Half-Yearly Meeting—Mr. C. C. Lee. (d) Delegate's Report of Half-Yearly Meeting of Trelawny Branches Associated given by Mr. C. C. Lee. (e) Roll Call and payment of fees. (f) Authorized Persons' reports. (g) Discussion. (h) Agenda for next meeting. "The King."

C. C. LEE,
Secretary.

Wilson's Run : Troy P.O.—Annual meeting held 9.5.39. There was a large turn-out of members. The officers of the Society had given good service. Through the efforts of the Society and the Branches Associated, the Troy-Pantrepant Road had been started. Mr. F. W. Kelly, Instructor, paid regular visits to the district, and carried out demonstrations and general work on several holdings. Thirty-seven members were enrolled.

(Miss) I. L. ROGERS,
Secretary.

WESTMORELAND : Cairn Curran; Darliston P.O.—Annual meeting held 12.5.39. Present : 8 members and 1 visitor. The deviation of a portion of the road was discussed. Election of officers : Mr. E. W. Prout, re-elected President; Mr. A. A. McDonald, 1st Vice-President; Mr. J. A. Bowen, 2nd Vice-President; Miss P. A. Hemmings, Secretary and Treasurer; Mr. A. U. Mitchener, Asst. Secretary. Authorized Persons reported "all correct." The singing of the National Anthem closed the meeting.

(Miss) P. A. HEMMINGS,
Secretary.

JUVENILE BRANCHES.

CLARENDON : John Austin; Chapelton P.O.—Meeting held 23.5.39, and was presided over by the President of the Adult Branch. There was an interesting programme of songs, recitations and a short address. New officers were elected. Arrangements were made for the Branch to participate in the proposed Associated Juvenile Exhibition during 1940. "The King" ended the meeting.

P. HENRY,
Secretary.

PORTLAND : Rock Hall; St. Margaret's Bay P.O.—Meeting held 9.5.39. Present : Instructor Graham, Teacher Vaughan, Miss Webley, Mr. V. Z. Brown, and about 60 juveniles. Matters dealt with : (1) Procuring of Note Books. (2) A Penny Bank. Four members had joined the bank. These were encouraged by Teacher Vaughan to continue. Mr. Graham addressed the meeting. He stressed the use of Farm Yard Manure for plants. Mr. Brown addressed the children. The meeting was brought to a close by the singing of the National Anthem.

WESLEY PATTERSON,
Secretary.

OTHER REPORTS RECEIVED.

Branch and Secretary.	Date of Meeting.	Attendance.	Business.
Clarendon— Brandon Hill (E. A. Graham)	15.5.39	26	Silver Jubilee. Reports of Authorized Persons. Report of delegates to the meeting of the C.B.A. Local show.
Beckford Kraal (J. A. Sweeney)	5.6.39	19	Address by Mr. Wrenford. Reports of Authorized Persons. Bank.
Do.	1.5.39	15	Reports of Authorized Persons. Bank.

OTHER REPORTS RECEIVED, *contd.*

Branch and Secretary.	Date of Meeting.	Attendance.	Business.
Stewarton (Miss I. I. O'Reilly)	6.6.39	Over 19	Correspondence. Enrolment of members. Report of A. P. Demonstration Plot. Lamp.
Sunbury (R. A. Peart)	9.5.39	..	Correspondence. Address by Supervisor Bacquie. Outing.
Mt. Airey (Miss M. E. A. Dawkins)	9.5.39	Over 16	Cabbage Competition. Correspondence. Report of delegate to meeting of C. B. A. Address by Instructor Virtue. Juvenile Plot. Water supply.
John Austin (H. C. Robotham)	22.5.39	Over 10	Ram. Address by the President. Minor matters.
Hanover— Cacoon (Miss M. C. Dinham)	18.5.39	..	Correspondence. Meeting of Hanover Branches Assoc. Land Settlement Scheme.
Manchester— Hatfield (Miss G. E. Bailey)	10.5.39	18	Reports of President and Secretary. Election of officers. Meeting of M.B.A.
Porus (C. Rowland)	1.5.39	..	Citrus Competition. Correspondence. Meeting of Manchester Branches Assoc.
Portland— Rock Hall (E. V. Metcalfe Vaughan)	9.5.39	Over 21	Fertilisers. Correspondence. Roads. Election of officers. Reports of Authorized Persons.
St. Catherine— Time & Patience (Miss A. M. Boyd)	13.6.39	Over 14	Field Day. Address by Instructor Byles. Citrus Industry. Report of delegate to meeting of Assoc. Branches.
St. Elizabeth— Nightingale Grove (Miss E. J. Dobson)	5.5.39	Over 12	Correspondence. Meeting of Assoc. Branches. Address by Instructor Wray. Outing.
Malvern (Miss E. I. Blake)	26.5.39	17	Half-yearly General Meeting. White Yam Competition.
St. James— Cambridge (J. Gordon Excell)	13.5.39	Over 27	Address by Instructor Hastings. Membership drive. Routine matters.
St. Thomas— Middleton (W. A. Thompson)	19.4.39	14	Address by Instructor McLaren. Election of officers. Leaf Spot.
Trelawny— Waldensia (C. C. Lee)	1.5.39	46	Address by Mr. H. L. Arnett. Irish potatoes. Reports of Authorized Persons.
Ulster Spring (Miss I. C. Williams)	15.6.39	Over 11	Correspondence. Infant School. Water supply. Reports of Authorized Person.

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25 lb. Tin "A" dust..... £1 9 2 per tin.

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*TESTING OUTFITS, COMPLETE, including cost of containers and mailing case

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*STANDARD IODINE SOLUTION, in 9 oz. bottles (including cost of bottle, 6d., and mailing case 2/-)

3/- each.

*STARCH SOLUTION, in 6 oz. bottles (including cost of bottle 4d. and mailing case 8d.)

1/3 each.

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1/3 each.

*25 C.C. CYLINDERS (for dip testing)

2/2 each.

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THE JOURNAL

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Vol. XLIII.

SEPTEMBER, 1939.

No. 9.

BOARD OF MANAGEMENT.

THE regular monthly meeting of the Board of Management of the Jamaica Agricultural Society was held at the offices of the Society, 10—12 North Parade, Kingston, on Wednesday the 2nd of August, 1939, at 11.30 a.m. There were present: Mr. U. Theo. McKay, Second Vice-President, presiding; Hon. G. A. Jones, C.M.G., Director of Agriculture (ex-officio); Messrs. H. G. Dunkley, T. P. V. McDaniel, and C. L. A. Stuart; Messrs. P. St. L. Bacquie and A. P. Hanson, Supervisors of Instructors and the Secretary, Arthur Thelwell.

During the course of the meeting, Hon. Geo. Seymour Seymour, O.B.E., attended.

Apologies for Absence.

Apology for absence was submitted on behalf of Mr. W. Harper Watson who was still in hospital.

The Secretary was instructed to convey the sympathy of the Board to Mr. Watson and to express to him their hope for his very speedy recovery to good health.

Confirmation of Minutes of the previous Meeting.

The minutes of the previous meeting having been circulated they were taken as read, and on the motion of Mr. Stuart seconded by Mr. Dunkley, were confirmed.

Matters arising out of the Minutes.

(a) *Land Settlement Committees—Letter from C.S.O..* The following was submitted:—

No. 1248/39.

22nd, July, 1939.

"With reference to the correspondence ending with your letter No. C.S.O. 25 of the 12th June, 1939, I am directed to inform you that His Excellency the Governor has appointed a Land Settlement Committee in each parish except Kingston and Hanover, to examine and make recommendations to the Commissioner of Lands as regards the suitability of properties offered and the demands for land settlement in the several districts of that parish. A Committee for the parish of Hanover will be appointed in due course.

2. A list of the members of these Committees is attached. Members other than ex officio members have been appointed for one year only in the first instance.

3. The District Lands Officer in each parish will be Secretary to the Committee for that parish.

(Sgd.) W. A. COVER,
for Colonial Secretary.

The information was noted and the Secretary was directed to publish the list of the members of the Committees in the Journal.

(b) *Government Aid to Citrus Growers.* At the request of the Secretary who stated that due to the preparation for the Half-Yearly meeting he had been unable to prepare the scheme asked for by the Board of Management at their last meeting, this matter was deferred.

(c) *Anti-Erosion Campaign—Correspondence with Thos. W. Biscoe.* The Secretary stated that copy of this correspondence had been circulated to the members of the Board.

The matter was tabled.

(d) *Hog Sickness—Report from Sr. Vet. Officer.* This was laid on the table.

Statement of Accounts.

(a) *Statement for July.* The Secretary stated that due to the absence of the Accountant on leave, this had not been prepared but would be circulated in due course.

Communications.

(a) *Request from Banana Leaf Spot Control Board for use of Board Room for meetings.* Letter dated 11th July, 1939, from the Banana Leaf Spot Control Board was submitted asking for permission to hold their meetings in the Society's Board Room.

This was granted.

(b) *Invitation from Red Hills Branch (Clarendon) to Agricultural Display on 1/8/39.* This was submitted.

Mr. Dunkley said he had attended the function which had been a very interesting one. Much praise was due to the Secretary of the Branch, Mr. W. A. James, and the Agricultural Instructor, Mr. Thompson, for the display which was very encouraging in respect to the work of the Society.

Mr. Dunkley was thanked for the report.

(c) *Correspondence with Mr. Ambrose Lescene re differences with Association of Branches (St. Catherine).* This was presented and the Secretary was directed to advise Mr. Lescene that in the opinion of the Board the matter was a domestic one which could be settled between the people involved.

(d) *Correspondence with Major G. B. Pease re Sundry items of trade.* The Secretary stated that Major G. B. Pease, a former member of the Board of Management, had written from New Zealand on the subjects of Citrus, Rum and Annatto in respect to our export trade. Copies of the letter had been forwarded to the Director of Agriculture, the Chief Inspector of Produce and the Marketing Department, and it was proposed to publish the letter in the Journal.

The information was noted.

(e) *Centenary Royal Agricultural Society of England: Letter from Commander Clarke.* A Report from Commander Clarke who represented the Society at the celebration of the centenary of the Royal Agricultural Society was presented.

The Secretary was directed to thank Mr. Clarke for his interesting letter.

Reports.

(c) *Half-Yearly Meeting.* The following was presented:—

HALF-YEARLY MEETING.

The Half-Yearly meeting was held at St. George's Hall on Thursday, the 27th July.

2. His Excellency the President, attended for a short time.

3. The business of the meeting was carried through with expedition and the discussion on some of the resolutions especially on Ginger and Coffee reached a high level.

A Committee of the Half-Yearly meeting was appointed to investigate and report to the Board of Management on the Ginger Industry.

4. The following resolutions have been referred to the Board :

Wet Sugar—Government Assistance. (Portland Br. Assoc.) Whereas the producers of Wet Sugar receive no assistance from Government: Be it resolved that the Board of Management be asked to consider ways and means of assisting the producers of settlers (or wet) sugar.

Ground Provisions—Market. (Portland Branches Associated.)

Resolved that this Half-Yearly meeting places on record its high appreciation of the efforts of the Parent Society to stabilise weights (and measures) of ground provisions and to obtain a fair market for ground provisions and foodstuffs of its members as evidenced in the Society securing contract from Government for supplying public Institutions throughout the Island with these commodities.

(Sgd.) ARTHUR THELWELL,
Secretary.
31.7.39.

The Secretary said that with regard to the Wet Sugar Industry he had investigated every possible avenue and had been unable to find a source of suitably priced containers. An interview with the executives of the Coconut Producers Association revealed that tins could be obtained through that Association, but these were supplied with lids which were unnecessary for the wet sugar trade. To obtain the tins needed would necessitate a definite large order which was not forthcoming from the producers. The cost would be about 1/2d. each.

Mr. Stuart suggested that an effort should be made to obtain tins from the Public Works Department which he understood made a charge of 3d. each.

The Secretary said he had gone into this source also, but the amount available would not be sufficient for the requirements. The Instructors in their reports had stated that there was a steady good demand for wet sugar at higher prices.

Mr. Dunkley pointed out that the price had recently risen to 8/-, whereas about two months ago the price for two tins had been 7/6d.

Mr. Stuart suggested that properly organized local marketing might help the situation.

The Secretary was directed to continue investigations and report further to the Board.

Mr. Dunkley asked what had been done with regard to the resolution on "*Co-operative Trading in Land Settlements.*"

The Secretary said that that matter had been referred to Government.

Mr. Stuart said that His Excellency in his message had made reference to the extended efforts for the control and eradication of the *Banana Borer* and he was interested to know if this service would be given in St. Mary.

The Director of Agriculture stated that the Department of Agriculture had advertised for application from those interested in *Banana Borer* Control and several applications had been received. An Insectary was being constructed for the breeding of Java Beetles in larger quantities for distribution by the Government Entomologist.

Subsidies.

(a) *Small Stock: (i) Application from Welcome Branch for half-cost of Boar, and (ii) Application from Bangor Ridge for half-cost of Buck.* On the assurance of the Secretary that the applications were in order and the regulations regarding Small Stock Subsidies would be duly carried out, amounts of £1 and £1 11/6d. respectively were authorised.

The Director of Agriculture said that at the Spaldings Show which he had attended on the 1st of August the display of goats had evidenced a great improvement in the quality of stock and reflected creditably the result of the efforts of the Society in the improvement of the strains.

(b) *Competition: Application from Mizpah Branch for donation re Sweet Potato Competition.* The Board regretted that they could not entertain this request.

(c) *Juvenile Branches: Application from R. N. Murray for grant for plot at Richmond Park.* A grant of 15/- was made to be paid from the amount voted by the Jamaica Welfare Limited for this service.

Diseases of Plants, & Animals: Insect Pests.

(a) *Panama Disease of Bananas—Reports for April and May.* These were submitted and the Secretary was directed to forward copies to the members as usual.

Office.

(a) *Application from Mr. McDonald for extension of leave—2 weeks.* The Secretary stated that this further leave was recommended by a Doctor and had been granted to the Accountant on the approval of the First Vice-President.

This action was approved.

Mr. Seymour attended and took the chair.

Resolution from Branches, &c.

The following resolutions were dealt with in detail and the Secretary instructed as to the procedure he should adopt in each instance:—

- (a) Thornton re Membership of Society and privileges.
- (b) Kensington re Infant Schools.
- (c) St. Elizabeth Branches Assoc. re: (I) Roads (2 resolutions).
 - (ii) Spread of T.B.
 - (iii) Control of Malaria.
 - (iv) Maternity Nurses (2 resolutions).
 - (v) Land Settlements.
 - (vi) Relief Work.
 - (vii) Buying Centres at Malvern.
 - (viii) Water Supply.
 - (ix) Cleaning of Blue Hole River.
 - (x) Vocational Training Centre.
 - (xi) Dental Clinic.
 - (xii) Infant School.
- (d) Whitehall re (i) Vocational Centre.
 - (ii) Post Office.
 - (iii) Middleton property for Land Settlement.
- (e) Brown's Town re retention of services of Secretary.
- (f) Iron Mountain re retention of services of Secretary.
- (g) Sligoville re retention of services of Secretary.
- (h) St. Mary Branches Assoc. (i) re retention of services of Secretary.

- (ii) Road.
- (iii) Marketing Depots (2 resolutions)
- (vi) Land Settlement.
- (v) Payment of Authorized Persons.
- (vi) Control of Leaf Spot.
- (vii) Credit for Seed Potatoes.
- (viii) Stud Station.
- (ix) Agricultural Credit.
- (x) Co-operative Sugar Factories.
- (i) Morris Hall re Medical Facilities.
- (j) Claremont re Time Limit for speeches at Half-Yearly meetings.
- (k) Wilbury Lemon Hall re (i) Post Office. (ii) Road.
- (l) Middle Quarters re (i) Buying Centre. (ii) Land Settlement.
- (m) Mt. Airey re (i) Factory for utilization of "Rush."
- (ii) Corn Depot.
- (n) Castleton re (i) District Nurse. (ii) Dental Clinic.
- (iii) Land Settlement.
- (o) Mt. Providence re road.
- (p) Portland Branches Assoc. re (i) Marketing Station at Skibo.
- (ii) Roads (2 resolutions).
- (iii) Sale of Silvera's Run Patent.
- (iv) Rental of Crown Lands.
- (v) Appreciation of efforts of Society re Marketing of Ground Provisions.
- (vi) School.
- (vii) Government Savings Bank.
- (viii) Medical Facilities.
- (ix) Government Assistance for producers of Wet Sugar.
- (x) Land Settlement.
- (xi) Agricultural Policy.
- (q) Jacks Hill re road.
- (r) Waterloo re road.
- (s) Roehampton re Land Settlement.
- (t) Lucky Hill re Agricultural Credit.
- (u) Wakefield re (i) Land Settlement. (ii) Parochial Dispensary.
- (v) Bunkers Hill re (i) Government Savings Bank.
- (ii) Government Dispensary.
- (w) Malvern re Surveying of lands in Land Settlements.
- (x) Highgate re Leaf Spot Control.
- (y) Phillipsburgh re road.
- (z) Little London re Land Settlement.
- (aa) Long Road re Protection of Minor Products.
- (bb) Keynsham re corn.
- (cc) Time and Patience re Citrus Industry.
- (dd) Crofts Hill re Bonus to Cane Farmers.
- (ee) Westmoreland Branches Assoc. re (i) Establishment of Factory for utilization of "Rush."
- (ii) Government Building for Post Office and Savings Bank.
- (iii) Land Settlement.
- (iv) Obtaining Registered Titles at reduced cost.
- (v) Police Station at Williamsfield.
- (vi) Infant School at Strawberry.
- (ff) St. Andrew Branches Associated re (i) Roads (8 resolutions).
- (ii) Savings Bank.
- (iii) Medical facilities.
- (iv) Introduction of new crops.

- (v) Compensation for loss through praedial larceny.
- (vi) Water Supply (2 resolutions).
- (gg) Wilson's Run re road.
- (hh) W. S. Robinson (Direct Member) re extension of Government's Road Policy programme.
- (ii) B. A. Forrest (Direct Member) re Illicit buying of Bananas.

New Members.

On the motion of the Chairman seconded by Mr. Dunkley the following were elected to the membership of the Society:—

- C. C. Campbell, 4 East Parade, Kingston.
- H. E. Rickards, George Street, Morant Bay.
- J. J. Marchalleck, Morant Bay.
- E. Hirsh, Ardsheal, Wilmington.
- Mrs. Gwendoline Brown, Eaton, Lucea.
- Mrs. Ivy Melhado, "Beverly," 12 Kingsway, Halfway Tree.
- W. Keith Mitchell, Brown's Town.
- R. L. Hollinsed, "Ramage," Bath.
- C. S. McNamee, Christiana.
- Vincent H. Muschett, Leigh Farm, Spanish Town.
- Bertram G. Lindo, c/o Fred L. Myers & Son, Kingston.
- W. J. Sumpter, Little Rodens, Old Harbour.
- E. S. Webb, Richmond.
- H. O. Westmoreland, Esher, Albany.
- Mrs. M. Lushington, 10a Caledonia Avenue, Cross Roads.
- M. J. Allgrove, 152 Constant Spring Road, Constant Spring.
- Mr. Prendergast, Nutts River, Morant Bay.
- J. H. Fulford, Bodles, Old Harpour.
- H. A. H. Jackson, Kellits.
- A. S. Campbell, Innswood Estate, Spanish Town.
- H. A. Slyfield, Moore Hall, Albany.

Other Business.

(a) *Leave for Secretary.* Application from the Secretary for two weeks leave from the 14th to the 26th August was presented and the leave granted.

(b) *Application from Miss Dias for one month's leave* from the 28th August was submitted and the leave granted.

(c) *Authorised Persons: Return of Arrears for quarter ended 30.6.39.* This was submitted and the Secretary instructed to publish a summary of the same in the Journal.

(d) *Resolution of appreciation from Little London Branch.* This resolution conveyed the appreciation of the Branch at the immediate action taken by the Custos of the Parish through the representations of the Society in the matter of the appointment of two Justices of the Peace for the parish.

The information was noted.

(e) *Resolution from Green Island Branch re Relief Work.* The Secretary was directed to make representations according to the request of the Branch for public work to relieve unemployment.

(f) *Resolution from Lawrence Tavern Branch re road.* The Secretary was directed to represent the matter of the condition of the main road from Noland Road to Lawrence Tavern to the Public Works Department.

(g) *Application from R. N. Murray for grant re Nutrition Scheme.* The Secretary was directed to take up this matter with the Acting Director of Medical Services.

Reports.

(a) *Instructors Committee.* The following report submitted for the information of the Board was taken as read.

2nd August, 1939.

To The Board of Management :

The Instructors Committee met this morning and beg to report as follows :—

(i) **SCHOOL GARDENS.**

Memorandum from the Director of Education with regard to Instructors' work in School Gardens was discussed. It was decided that the Acting Director of Education and Supervisor of Agricultural Training should be invited to attend the regular meeting of the Committee in September to discuss the Memorandum.

Pending a decision as to policy, Instructors are to continue their work in School Gardens as heretofore.

(ii) **SUMMER COURSE.**

The Secretary submitted a report on the Course. It was decided to express to the Department of Agriculture and its Officers the appreciation of the Committee for their work in arranging and carrying through the Course.

(iii) **POTATO SPRAYING.**

The Chairman and the Secretary were requested to confer with the Marketing Officer and endeavour to make arrangements for undertaking this work.

(iv) **ANTI-EROSION.**

A scheme submitted by Mr. Thos. W. Biscoe was considered and the Secretary instructed to inform Mr. Biscoe that the Committee was in sympathy with the scheme and that any pioneer work which he did would be appreciated.

(v) **POOR QUALITY BANANAS.**

Representation from the Chief Inspector of Produce re poor quality of bananas in certain districts of St. Catherine was investigated.

The Instructor for the area ascribed the poor quality of fruit to the drought and the effect of Leaf Spot Disease.

The Committee recommend to the Board that representations be made to Government asking that legislation with regard to cutting of immature fruit be enforced as this was a great handicap to the industry.

(vi) **SCHEME FROM SUPERVISOR HANSON.**

A scheme from Supervisor Hanson with regard to his travelling as a member of the Board of Management of the Practical Training Centre at Dinthill was referred to the Education Department.

(vii) **PENSIONS.**

Resolutions from the Instructors' Conference with regard to Pensions was considered and it was decided that the Chairman, First Vice-President and the Secretary be asked to interview the Colonial Secretary and discuss the matter.

(viii) **LEAVE OF ABSENCE.**

Leave of Absence was granted to the following :—

Instructor C. C. Hastings—month of September.

Instructor D. A. Jones—month of August.

Foreman Edie was granted four weeks sick leave with the proviso that he be medically examined and a report submitted to the Committee.

(ix) **AFFILIATION.**

The following applications for affiliation were approved and are recommended to the Board.

Richmond (Manchester)

Bird's Hill (Clarendon)

Guy's Hill (St. Catherine).

(x) **PROMOTION OF INSTRUCTOR.**

The Committee has regraded Instructor M. N. Thompson as a First Class Instructor, the appointment to date from the 14th of August, 1939.

(xi) **MEMBER OF LAND SETTLEMENT COMMITTEE.**

Permission was granted to Supervisor Hanson to act as a member of the Land Settlement Committee for the parish of St. Andrew.

(Sgd.) G. A. JONES, *Chairman.*

(Sgd.) ARTHUR THELWELL, *Secretary.*

(b) *Office Committee*. The following report was taken as read, and on the motion of the Chairman seconded by Mr. Dunkley, was adopted.

2nd August, 1939.

THE BOARD OF MANAGEMENT :

The Office Committee met this morning and beg to report as follows :—

1. That the debtors who did not respond to letters asking for immediate settlement of their accounts be written to by solicitors after proof of the debts have been made.

2. *Clerical Service* : The following arrangements for payment of the Office Staff are recommended to the Board :—

Miss Slowley be given an increase of 10/- per week.

Miss M. Robertson — 5/- per week.

Miss J. Hanson — 5/- per week.

Miss J. Robertson — 5/- per week.

Miss Slowley to be requested to signify her intention of remaining in the service of the Society as a result of the increased salary.

3. *Journal* : Owing to the delay in getting the Journal off the Press, the possibilities of having it printed on alternate months by different firms was considered.

Quotations have been received from the Gleaner Office and the Herald Printery.

The quotations were comparatively high and it was decided to ask the Gleaner to reconsider their quotation—Mr. McKay to be deputed to interview the Manager with regard to the matter.

(Sgd.) G. A. JONES, Chairman.

(Sgd.) ARTHUR THELWELL, Secretary.

The meeting adjourned to Wednesday the sixth day of September, 1939, at 11.30 a.m.

JAMAICA NEEDS CROP ROTATION.

By HEADLEY E. BAILEY, B.Sc.,

THE recent suggestion to local farmers by the Secretary of the Jamaica Agricultural Society, as reported in the English monthly, the *Crown Colonist*, is a very timely warning. In fact crop rotation should have been introduced as a permanent system of farming in the Colony soon after the World War. It is obvious that with every advance in public health and social welfare there must be a contributing factor—an improved standard of living. As an agricultural exporting country the farming communities are under constant pressure to demonstrate initiative and resourcefulness in order to maintain a fertile soil, and to improve crop production if they wish to safeguard a desirable place in the "sun".

Modern farm management owes much to the early Flemish farmers who introduced the idea of crop rotation with legumes, turnips, and small grains. Their system made possible intensive cultivation to meet the food problem; more livestock could be kept and a greater crop produced. But little progress was made among the English farmers of that day, entrenched in the old Roman system. It was not until the 18th century when English farmers adopted the Norfolk system of cropping, established by Lord Townshend of Norfolk County with a 4-crop rotation of wheat, turnips, barley, beans or clover (grown in this order) that England became the scene of a great agricultural revival both in Europe and America. Not only was the yield of wheat increased two and one-half times, through a more effective use of available soil nutrients by the plant, but this system laid the foundation for extensive field research with crop plants from which John Bennet Lawes founded the great agricultural station at Rothamsted, England.

What is crop Rotation?

We may define crop rotation as a system of growing different kinds of crops in recurring succession (one after the other) on the same land. Rotation implies recurrent planting of the principal crops in the system at regular intervals.

We begin by subdividing the farm into several fields. Then a suitable cropping system is devised, after which each crop is planted in regular succession year after year. Fields are so laid out that the farmer knows which piece of land will be occupied by each crop in a given year. For example: suppose the farm is divided into three fields, A, B, C. and the cropping system comprises: cabbage or potatoes, corn, beans in this order. We plant according to this plan:

		<i>Field A.</i>		<i>Field B.</i>		<i>Field C.</i>
1st year	...	cabbage	...	corn	...	beans
2nd year	...	corn	...	beans	...	cabbage
3rd year	...	beans	...	cabbage	...	corn

And it is to be observed that all the crops are grown each year.

Field investigations have shown that some crops yield better after certain other crops, than if allowed to follow themselves, or even other crops. This demonstrates that crops affect the soil differently. Cabbage is a coarse feeder and leaves the soil in an acid condition, whereas corn increases its alkaline (basic) properties. Red beets leave the soil acid. And carrots yield better if planted after onions or corn, than after cabbage or potatoes. Then again certain related crops like cabbage and cauliflower should not follow each other at short interval on the same field, due to their susceptibility to the disease organism known as club-root. And it is considered good practice to alternate a shallow-rooted crop with a deep-rooted feeder like corn. Besides, of course there are many interesting variations which can be worked out by an alert farmer to suit his seasonal market demands.

Advantages of crop Rotation.

Of course some crops respond more than others to the effects of rotation. And some may give greater response to fertilizers and manures than to rotation on some types of soil. Where for reasons of economy it is desirable to grow certain crops on the same land year after year, satisfactory results will be obtained if the needs of the crop can be maintained by beneficial servings of lime and manure.

The growing of crops in a well-planned order of succession has many advantages over the single crop system. Briefly stated here is a list of some of the many advantages to be gained from crop rotation:

- (1) It provides for alternating crops with different root systems so that the various layers of the soil are used most economically.
- (2) It reduces the loss from insects and disease-producing organisms. When a vegetable plant which is host to a specific disease organism does not occupy the land for too long a period the disease may be checked.
- (3) It helps to control weeds.
- (4) It checks erosion or wearing away of the soil.
- (5) It enables a more effective use of land than a one-crop system.
- (6) The greatest benefits of farming are obtained when crop rotation is used in conjunction with fertilizers and manures.
- (7) A good rotation should provide as large an area as possible for the most profitable cash crop.

One of the limiting factors in the application of crop rotation in Jamaica is the tendency of small farmers to shift their plantations to virgin land frequently. This practice marks the early stage of agriculture when the early husbandman discovered that resting a piece of exhaustively cropped land would restore its productive capacity. But with a properly planned system of rotation, arranged on a co-operative basis between groups of small farmers, there should be a decreasing tendency to make farming unnecessarily burdensome and expensive by frequent shifts to new land.

LOAN BANKS.

By E. L. JACK.

FOR several years past, there has been considerable agitation for the establishment of a State Agricultural Loan Bank in our Island. It is doubtful, however, whether the average small farmer realizes the extent to which Government has endeavoured in recent years, to meet the demand for improved credit facilities for Agriculturists.

Law 6 of 1912 was an admission by Government of the need for encouraging the formation and working of Loan Banks in the Island and the Agricultural Loan Societies Board was appointed by Government to exercise general control and superintendence over the Banks. Power was given to this Board to enquire into the proceedings of all Loan Banks and to make advances to the Banks out of such funds as were, from time to time, made available for this purpose by the Legislative Council. During the 27 years of the Board's existence, the relationship between the Banks and Government has been most cordial. Such differences as have arisen, have always been settled amicably because of an honest endeavour on both sides to appreciate the other's point of view.

Previous to the establishment of these Banks, the rate of interest paid by Agriculturists to local money lenders varied from 6d. to 1/- per week on each pound. The advent of the Loan Bank reduced the rate of interest to 2d., 2½d., 3d. and 4d. per month on each pound. The vast majority of the loans were made at the lower rates. The higher rates were charged by some Banks on very small loans. The rates charged represented an honest effort on the part of Banks to earn sufficient revenue to pay working expenses.

The small settler who was alive to his own interest did not take long to appreciate the fact that a £5 loan at 6d. per week on each pound would cost him 2/6d. per week or £6 10/- each year for interest, while even at the highest rate charged by any Loan Bank, his interest charges on the same £5 loan, would amount to only £1—a saving of £5 10/-. The result was that the local money lender was driven out of business in all the more progressive districts of the Island.

With a view to enabling Banks to reduce interest rates, Government, in 1936, reduced the rate of interest to Loan Banks on loans under Law 6 of 1912 from 6% to 3%. As some Banks were not indebted to Government and as in other cases, the amount owing Government did not form a considerable portion of the Bank's working capital, it was found that while this reduction was greatly appreciated by the Banks, it did not result in a general reduction of interest rates.

With a view to reducing the cost of administration expenses to the Banks, during 1938 Government undertook to supply Forms, Cash

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Books, Ledgers and certain other necessary Books to Banks free of charge. This has resulted in an appreciable saving to the Banks, and at the same time has standardized the form of Accounts kept by them.

Government also offered during 1938, financial assistance to Loan Banks which were charging more than 10% on loans on condition that interest rates were reduced to a rate not exceeding 10%. Twenty Banks accepted the offer, and a very important step towards providing cheap credit for small farmers was taken. At the close of the financial year, 1938-39, there were only seven Banks which were charging more than 10% interest on loans.

As a result of further representations by the Agricultural Loan Societies Board and in keeping with the oft-expressed views of Elected Members and Branch Societies, arrangements have now been made for a further reduction of interest rates. In future, small farmers who meet their obligations promptly, will be able to obtain mortgage loans at 6% and loans on personal security at $7\frac{1}{2}\%$ from those Banks which have accepted the financial assistance offered by Government. This means that instead of interest at 2d. per month on each pound, *borrowers will be required to pay $1\frac{1}{2}$ d. per month for interest on each pound lent on personal security and less than $1\frac{1}{2}$ d. per month on each pound lent on mortgage.*

Obviously, these reduced rates of interest will not allow of the payment of high rates of dividend, but shareholders will not expect low rates of interest and big dividends, knowing that Loan Banks exist to provide loans at as low a rate of interest as possible for the small agriculturist.

In addition to the concessions mentioned above, Government has also relieved borrowers from the payment of Stamp duties on Agreements, Bonds, Mortgages, etc., made or entered into with a Loan Bank, and has exempted Loan Banks from the payment of fees for recording mortgage deeds or for registering any mortgage under the Registration of Titles Law. The effect of these concessions will be to cheapen the cost of the loan to the borrower. Of course, valuation fees will still have to be paid by applicants for loans on landed security but every effort is being made by the Banks to make this charge as low as possible.

Under Law 6 of 1912, a Bank was eligible for loans not exceeding in the aggregate two-thirds of its issued Capital. Of course, the fact that a Bank was eligible for a loan of £1,000 did not mean that it would get it for the asking. The Agricultural Loan Societies Board had to be satisfied with the Secretary, and the Management, and the borrowers. If a Secretary lacked keenness, or the Management lacked a sense of responsibility, or if borrowers lacked a money conscience, then applications for loans would be refused or reduced until the conditions complained of were remedied.

So satisfactory has this arrangement proved, and so readily have the Banks co-operated in efforts to improve their efficiency that the Board unhesitatingly supported a proposal made three years ago, that there should be an extension of the borrowing powers of Banks. The result was the passing in August of last year, of Law 29 of 1938, which authorises

- (a) The issue to a new Bank of loans not exceeding in the aggregate the sum of £500.
- (b) The issue to an old Bank of loans aggregating twice its paid-up Capital, or two-thirds its issued Capital, or such amount as the Governor in Privy Council may approve.

- (c) The issue, with the approval of the Board, of loans reasonably in excess of £200 to individual shareholders.

Under Law 6 of 1912, a Bank with an issued Capital of £1,500 and a paid-up Capital of, say, £800 was eligible for £1,000. Under Law 29 of 1938, such a Bank is now eligible for £1,600 or such amount as the Governor in Privy Council may approve. The amount of loan which a Bank will in future obtain from the Board will be very largely determined by the character of its Secretary, its Management, and its borrowers.

Recent legislation has also provided for financial assistance to agriculturists by way of loans to be given through the Loan Banks whenever the Agricultural Industry of the Island is from any cause whatsoever materially damaged.

The satisfactory results achieved by Loan Banks in the issue and recovery of Hurricane Loans in the past, fully justify the decision to entrust this important task to these institutions.

It speaks volumes for the work of the Loan Board and the Loan Banks that of £182,000 lent out through Loan Banks, up to the end of 1938, only £18,000 was outstanding at the 31st December, 1938. Since then, further loans amounting to £11,048 have been made by the Board to the Banks and as the majority of these loans are made for fairly long periods, it is possible for Banks to issue mortgage loans to its members for longer terms than hitherto.

There are at present fifty-five Banks operating in the Island. Proposals for the opening of two others are now under consideration. The Agricultural Loan Societies Board is always ready and willing to assist in the establishment of Loan Banks in areas which are not at present served by existing Banks, provided that in every such case there is a genuine desire on the part of the local people for the establishment of a Bank, and that it is possible to obtain within the area to be served, the right type of Management.

FOOD PRODUCTION.

QUICK CROPS FOR EACH PARISH.

St. Thomas.	Gungo peas, cow peas, corn, black eye peas.
St. Andrew.	Red peas, vegetables, corn in Lower St. Andrew, (specially in the Red Hills area) cow peas, black eye peas, and pigeon peas on Liguanea Plain.
Portland.	Vegetables, red peas, corn in the Spring only. There should be no encouragement of Irish Potatoes save in the districts to be named.
St. Mary.	Corn in the Spring only and on Coast lands; gungo peas, red peas on higher lands; pigeon peas.
St. Ann.	Corn, pigeon peas, cow peas and black eye peas in all areas.
Trelawny.	Corn, pigeon peas, cow peas, and black eye peas in all areas.
St. James.	Corn in Upper St. James, cow peas, and black eye peas.
Hanover.	Red peas, Lucea yam.
Westmoreland.	Corn, red peas.
St. Elizabeth.	Corn, gungo peas, red peas in upper districts.
Manchester.	Corn, red peas, pigeon peas.
Southern	
Clarendon.	Guinea Corn
Mid-Clarendon.	Corn, red peas, cow peas, gungo peas.
St. Catherine.	As for Clarendon save that no Guinea Corn should be planted.

FOOD PRODUCTION BOARD.

PAMPHLETS.

MUCH improvement can be made in the methods used in cultivating the common food crops grown in Jamaica. Yields may be increased and better use made of the land often by introducing but small changes in the customary methods. A series of pamphlets describing the cultivation of the common food crops has been compiled by Officers of the Department of Science and Agriculture with the co-operation of Officers of the Jamaica Agricultural Society. The pamphlets set out in a simple way the methods of cultivation, including manuring and pest control, most likely to produce the highest yields under Jamaican conditions. The methods described are based on those already established locally, but wherever possible, improvements on these methods are suggested. It may be necessary to vary the details of procedure according to the soil and to climate conditions, in different areas, but in the main the recommendations may be applied generally. Advice on the effect of local conditions may be obtained from the Agricultural Instructors of the district.

The first three pamphlets of the series dealing with Corn, Pigeon Peas and Cow Peas, respectively, are published in this issue of the Journal. Others dealing with other crops will follow. The pamphlets are available separately and copies may be obtained on application to Agricultural Instructors or to the Secretary of the Jamaica Agricultural Society and the Secretary of the Food Production Board.

PAMPHLET No. 1.

Maize or Corn (*Zea Mays*)

A COMBINATION of warm, sunny weather with periodic heavy showers of rain provides the most satisfactory climatic conditions for the cultivation of corn. In many countries these conditions occur only in one season of the year, and hence it is not possible to grow more than one crop, but in Jamaica there are two seasons in every normal year in which good corn crops can be raised.

Most Jamaican soil types are suitable for the cultivation of corn, and it is therefore surprising to find that, year after year, the Island imports many hundreds of tons of cornmeal. Growers have in the past regarded corn as a crop of secondary importance and have paid little attention to proper methods of cultivation. Many crops have been raised from inferior seed on soils considered too poor for other crops, and as a result yields in some areas are commonly as low as 10 to 15 bushels per acre, while in the Island as a whole, it is rare to find crops exceeding 30 bushels per acre.

The cost of raising these crops is nearly as high as the cost of raising much larger crops of 35 to 50 bushels in other countries, and this has made it profitable for some of these countries to export meal and even whole corn to Jamaica.

The notes that follow are given to assist growers to increase their yields of corn and to encourage Jamaica to become self-supporting in a crop which grows readily over a greater part of the Island.

DISTRICTS SUITABLE: Corn is already grown to a fair extent in Manchester, St. Ann, Trelawny, St. Elizabeth, Upper Westmoreland, Upper St. James and Clarendon, but the acreage in each of these

parishes could be increased. Many parts of St. Catherine, St. Andrew and St. Thomas are also suitable, and Spring crops could be raised on the coastal areas of St. Mary and Portland.

SOIL. On very sandy soils corn plants, which are shallow rooted, may be blown over and on very heavy soils root penetration may be restricted. Almost any intermediate soil is, however, suitable provided it is in a good state of fertility.

MANURING. Corn is a very greedy feeder and responds well to manuring. A green manure crop or the remains of a pea crop (red, gungo or cow pea), or an application of animal manure ploughed or forked in while preparing the land for corn will give good results. Where this cannot be done, 1 cwt. of sulphate of potash and $\frac{1}{2}$ cwt. of 32% superphosphate per acre applied just before sowing and 1 cwt. of sulphate of ammonia per acre applied around the plants 3-4 weeks after sowing will increase yields so long as rainfall is adequate. On irrigated soils the application of sulphate of ammonia may be increased to $1\frac{1}{2}$ to 2 cwt., $\frac{1}{4}$ to $\frac{3}{4}$ cwt. of this being applied around the plants 3 weeks after sowing and the balance 3-4 weeks later.

PREPARATION OF LAND. The land should be ploughed or forked to at least 8 inches and be worked down to a loose condition, until it is free of all weeds when the seed is sown. When it is not possible to treat the whole area in this way, strips of land 3 ft. 6 ins. apart may be forked and hoed, the interspaces being cultivated later when the seed has germinated.

CHOICE OF SEED. Growers who select their own seed for planting should remember that plants with two ears usually yield more grain than plants with one ear, plants with three ears more than two, and so on. Selection of seed should therefore be made in the field, and all the cobs from vigorous, healthy plants which have produced several cobs be collected separately before the rest of the crop is harvested. These ears should then be examined carefully and all very short and poorly filled ones discarded. Seed for sowing can be taken from the remainder, which should be fairly long, nearly as fat at the top as at the butt end, and showing 14 to 18 rows well filled with grains. Where corns of different colours are available, preference should be given to the rich yellow types rather than the pale yellow, white or red types. (A more detailed account of the selection of seed corn is to be given shortly in a separate pamphlet.)

TIME OF SOWING. The autumn crop is sown August to October and the spring crop March to May. In either case, sowing should be done as soon as seasonal rains appear to have set in.

SEED RATE. Under the usual method of sowing corn with 3-4 seeds to a hole, about 6 quarts (or 18 lb.) of seed is needed to plant one acre. If the method outlined below is followed carefully, however, it should be possible to sow an acre with 3 quarts (or approximately 9 lbs.)

SOWING. On large areas sowing is usually done with special machines which drop seeds at the required spacing. On smaller areas where the seed is to be sown by hand, the first step is to line out the land in rows 3 ft. 6 ins. apart. Single grains should then be sown in these rows 1 ft. 6 ins. apart, and about 2 ins. deep if the soil is moist and 3-4 ins. deep if the soil is rather dry. The usual method

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of sowing with a dibble is satisfactory as long as the spacing between seeds and the depth of sowing is properly regulated. Spacing can be controlled by using poles marked off in 1 ft. 6 ins. lengths, and depth by attaching a guard to the dibble which will prevent seeds from penetrating too deeply.

If any seeds fail to germinate, the gaps can be supplied either with seeds or young plants at the earliest possible opportunity.

INTERCROPPING AND ROTATIONS. Corn is frequently grown mixed with other crops in Jamaica but the results obtained from this intercropping are rarely so good as those obtained by growing each of the crops separately. It is much better to grow corn as a pure crop, and to follow it with some form of pea crop or green manure crop which will improve the fertility of the soil. A useful crop for this purpose is the velvet bean. If rain falls 4-5 weeks before the ears are harvested, the velvet beans can be sown through the corn, and will grow up using the dry stalks as poles on which to clamber. If the bean seeds are sown in every second row of corn and between alternate corn plants in the rows, i.e., spaced 7 x 3 ft., the beans will rapidly cover the whole field, smother weeds, and provide a large quantity of organic matter to improve soil fertility. If one corn crop is allowed to follow another, the soil will soon become exhausted.

MOULDING UP. As the corn plant develops, it sends out roots from the lower part of the stem, and as soon as this occurs, soil should be moulded up to cover the roots, in order to help them to supply the plants with food and water as early as possible.

PRUNING. Corn plants may sometimes send out several side shoots, but even when these are produced fairly early in the life of the plant, they rarely produce any satisfactory ears, but instead use up food supplies which should be going to the main stem and its ears. These side shoots should, therefore, be removed as early as possible.

AFTER CULTIVATION. Apart from the hoeing done in moulding, which should be very thorough, there should usually be no need for cultivation after sowing. If dry weather sets in too early, however, all weeds should be hoed down and left on the ground as a light mulch. In doing this, care should be taken not to damage surface roots of the corn by hoeing too deeply.

CONTROL OF PESTS ON YOUNG PLANTS. During early growth, Army Worms and Plant Lice (Greenfly) may damage the plants. As soon as either of these pests appears, it is advisable to dust the plants, while the dew is still on them, with ordinary wood ashes. If this treatment fails to prevent the further spread of the pests, the grower should immediately seek advice from the Agricultural Instructor in his district.

CONTROL OF PESTS ON PLANTS WHICH HAVE ALREADY PRODUCED THEIR EARS. If worms are found to be damaging foliage and the hearts of the plants when the ears are nearly mature, a good method of control is to press by hand the young leaves at top of the plant so as to crush the worms sheltering inside. When, however, corn is grown on a large scale, the usual method of control is to dust with arsenical compounds, but if growers wish to do this, they should first apply for full instructions to the Government Entomologist, c/o the Director of Agriculture, Hope.

HARVESTING. If there is no danger of rain, harvesting may be delayed until the plants begin to dry. This is a better practice than pulling back the husks to see if the grains inside are mature, when the openings made make it easy for weevils to gain entry and lay their eggs. Moreover, allowing the plants to start drying ensures that all the grains are dead ripe, and such grains in storage are much less subject to weevil attack than less mature grains. If for any reason, harvesting has to be further delayed after the plants have started drying, the ears may be broken over to prevent rain soaking in at the tips. It is essential, however, to remember that the ears must be dead ripe before being broken over. If they are not dead ripe, they will dry with a high proportion of sugar in them, and this will make them very subject to attack by weevils.

In harvesting, the cobs should be picked off by hand and the husks removed and left in the field. Ears found infested with weevils should always be put into separate containers and kept in a different store from the sound ears. Grain from the weevil infested ears should be fumigated or disposed of as quickly as possible.

SHELLING AND STORING. Shelling by hand is laborious, but simple inexpensive machines are available to do this operation. Whether the corn is stored in husk or as grain after husking, it is essential to dry it thoroughly in the sun and to keep it in a dry store afterwards.

Galvanized bins are probably the best storage containers, provided that they possess lids which can be properly closed to prevent the entry of weevils. Crocus bags are suitable if the grain is only to be kept for a short time, but it is important to remember that second-hand bags commonly contain weevils and should, therefore, be treated before use by soaking them in boiling water.

Seed corn is usually stored on the cob, suspended in looped wires or strings.

REMINDER. All prospective corn growers should remember that, under the law, no corn may be planted within 300 yards of sugar cane. The object of this law is to prevent the spread of mosaic disease to the cane.

PAMPHLET No. 2.

The Gungo or Pigeon Pea (*Cajanus indicus*)

THE PIGEON PEA is grown over a wide area in the Tropics under a variety of names including Congo Pea, Split Pea, No Eye Pea and Dahl. Its popularity is due to the ease with which it may be grown and its good yields, to its exceptionally high feeding value (proteins approximately 20%, carbohydrates 50%) and to its pleasant and distinctive flavour, whether picked in the green or ripe state. In Jamaica it is at present grown mainly in St. Elizabeth and St. Thomas, but its cultivation is nothing like so extensive as it deserves to be.

Numerous varieties of Pigeon Pea exist. All make perennial shrubs, which in some cases are only about 3 feet tall when fully grown, whereas in others the plants develop almost to the size of trees. The peas too, vary greatly. Some are the same size as the Common green pea, while others are considerably smaller; while in colour they may be reddish brown, yellow, white or grey with various forms of mottling. Three types are stated to occur in Jamaica (Journal of the

J.A.S., May 1935) namely: No Eye and Porus which develop into small shrubs, and Tamarid or Minto, which makes a large shrub. In so far as choice of variety is concerned, however, it is advisable to keep to the types already found in any particular locality. If you are doubtful on this point, the best thing is to get in touch with the Instructor in your area as soon as possible.

The following notes should be of assistance to persons wishing to cultivate the Pigeon Pea:—

DISTRICT AND CLIMATE. The Pigeon Pea is a deep-rooted plant and stands up to a fair amount of drought. Apart from St. Elizabeth and St. Thomas where it is grown to some extent already, it will probably do well in many parts of St. Catherine, mid-Clarendon, South Manchester. (below 2,000 ft.), St. Ann, Trelawny and Lower St. Andrew.

SOIL. The plant is not particular as to type of soil, provided it is well drained and deep, but on certain soils an application of 10 to 15 cwt. slaked lime made before sowing will improve yields.

TIME TO SOW. September—October and April—July, whenever rain is expected.

PREPARATION OF LAND. The land, especially if at all compact and heavy, should be ploughed or forked to at least 8 ins. to give the tap root a good chance to develop. Where rains interfere with these operations, it is possible to hasten the preparation by track-forking along the rows, 4 to 6 feet apart, killing weeds in the spaces between the rows, and later, after the seed is sown, forking or hoeing between the rows. It is important to remember that before a new crop is sown all old pigeon pea plants should be destroyed as these harbour plant lice which may attack the new crop.

SEED RATE. Small seed types, 4 quarts; medium, 6 quarts, and large, 8 quarts per acre. In pounds this is roughly equivalent to 12, 18 and 24 lbs. per acre.

SOWING AND SPACING. The spacing required is 4—6 feet between rows and three to four feet between plants in each row. Three seeds should be sown in each hole, 1½ to 2 inches deep. When seeds germinate, they should be thinned to leave one plant.

INTERCROPPING. The Pigeon Pea does not develop to full size for some months, and it is therefore possible to use the land between the rows for a crop of cow peas or, if the area is suitable, of red peas. It should also be possible in some instances, to establish Pigeon Peas through sweet potatoes that are nearly ready to be dug. Separate pamphlets on the cultivation of these crops are available.

AFTER-CULTIVATION. Hoeing to keep down weeds is particularly important in the early stages. In dry areas such as St. Elizabeth, mulching is desirable.

HARVESTING. The Pigeon Pea is a perennial and may give two crops in each year. In some cases cropping extends over several months. The highest yields are therefore obtained by hand picking the pods systematically as they mature. For home use, some can be picked and shelled green, but for general market purposes, it is desirable to pick and shell the pods as soon as they are dry. It is worth noting, however, that Pigeon Pea plants provide good fodder

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for stock, and in cases where pen-keepers find themselves short of feed, it is possible to remove the whole plant, thresh out the seeds, and feed the shoots to stock.

YIELDS. Pigeon Peas should give 800 to 1,000 lb. (12½ to 15 bushels) per acre per annum. The second crop is usually heavier than the first.

PIGEON PEAS FOR GREEN MANURE AND FODDER. It has already been stated that Pigeon Peas plants can be used for fodder, and it should also be mentioned that they make an excellent green manure crop, to be grown and ploughed in on lands which have become run down through continuous cropping with bananas, corn, etc.

If sown specially for green manure or fodder, the seed is usually broadcast after ploughing or forking, and the seed rate in such cases should be 12 to 16 quarts (36 to 48 lbs.) per acre.

PAMPHLET No. 3.

The Cow Pea and Blackeye Pea (*Vigna Spp.*)

COW PEAS are widely grown throughout the tropics and subtropics to provide human and stock food, and for fodder, cover cropping and green manuring. Numerous varieties exist, but the Clay-coloured and Blackeye types are the most popular for food. When used for this purpose the pods can be cut young and eaten like string beans, cut a little later and shelled and eaten like green peas, or left until dry when the seeds can be used for much the same purposes as red peas (Kidney beans). An important advantage of the cow pea is its rapid development, the crop being ready to harvest in two to three months.

Used as a cover crop for citrus and other orchard trees the cow pea forms a thick mat, does not climb, and adds much nitrogen and organic matter to the soil. It makes an excellent green manure crop to improve the fertility of land following a crop of corn. Where old banana plantings are to be cut down and replanted, a crop of cow peas put in before the new suckers are planted should be very beneficial. The plants provide good forage and hay for livestock. Sown in contour rows on slopes, they help to check erosion or soil wash.

Cowpeas of the clay and blackeye types are already being grown to some extent in Jamaica, but they have not received the attention that they deserve. Any grower interested in improving his land and in establishing sound rotations should give careful consideration to the merits of this crop both for the provision of food and the addition of nitrogen and organic matter to the soil.

The following notes should assist growers to obtain good results with cow peas and blackeye peas.

DISTRICTS AND CLIMATE. Cow peas do well in conditions that suit corn (maize) and will stand up to a fair amount of drought. If high altitudes and heavily shaded or damp, cool places are avoided, they should do well in most districts of the following parishes:—Lower St. Andrew, St. Catherine, Mid-Clarendon, South Manchester (below 2,000 ft.), St. Elizabeth, St. Ann, Trelawny, St. Thomas, and the coastal lands of Portland, St. Mary and St. James.

SOIL. Cow peas can be grown successfully on almost any soil that is well drained and not too badly eroded or exhausted through mismanagement.

CHOICE OF SEED. As already noted, the clay and blackeye types are preferred for food purposes, but more important points are to avoid planting mixtures of seeds of different colours and sizes and to use only seed which is known to have been grown on plots that were free from attack by weevils. Seed reaped from plots which are infested by weevils carry the eggs of the weevils to new plots.

TIME TO SOW. About six or eight weeks before the spring or autumn rains are expected to end if seed is required, or two to four weeks earlier than this if the main purpose is to grow a green manure or cover crop.

INTERCROPPING AND COVERCROPPING. Cow peas can be used as a cover crop for citrus or young banana plants, as they grow well under light shade. Where corn is sown early and is well spaced a crop of cow peas can be sown between the rows of corn towards the end of the rainy seasons.

SEED RATE. If sown as a pure crop in rows, 5 to 7 quarts (15 to 21 lb.) depending on size of seed, will plant one acre. If broadcast as a green manure or cover crop one bushel (60 lb.) of seed should be sufficient for an acre.

PREPARATION OF LAND. Best results are obtained if the land is first forked or ploughed and then worked down to a fine tilth. If cow peas are sown through corn or after root or vegetable crops, hoeing will usually be sufficient preparation.

SOWING AND SPACING. For a pure unmixed crop it is desirable to sow cow peas in rows about 3 feet apart with single seeds spaced at 6 inches in the rows. If sown through corn which is growing in four feet rows, two rows of cow peas can be sown between the corn rows, the rows being 2 feet apart and the seeds 1 foot apart in each row.

AFTER CULTIVATION. One hoeing shortly after the seeds germinate should be the only cultivation needed unless quick growing weeds like nut grass are prevalent. Care should be taken in doing this not to damage the young plants which are easily broken at this stage.

HARVESTING AND THRESHING. For seed purposes the pods can be hand picked when dry or the whole plant can be cut when most of the pods are mature and threshed subsequently. The pods should be dried thoroughly in the sun and then collected in bags and beaten to remove the seeds. The peas should always be sold as soon as possible after harvest as they are very subject to attack by weevils. If this is not possible it is desirable to delay threshing until just before the peas are to be marketed, as weevils do not usually do as much damage to peas inside their pods as when shelled.

YIELD. Seven bushels is poor, fifteen bushels good. A bushel weighs approximately 64 lb.

MANURING. As explained above, Red Peas like a rich soil, and will respond to a dressing of organic animal manure, ploughed or forked in before sowing. If such manure is only available in limited quantities, however, it would be preferable to apply it to the preceding

crop, especially if this is a root or vegetable crop. The red peas will still benefit to some extent from the manure applied to this earlier crop. On the other hand, if corn is the preceding crop, it would be better to try and save the manure for the peas. With artificial fertilizers, including lime, it is desirable that these should be applied to the preceding crop, because most of these fertilizers act too slowly to benefit a crop that only takes two or three months to mature. Applying them to the previous crop will, however, give them a good start.

PREPARATION OF LAND. Although the Dwarf red peas are quick growing plants, they rarely grow much taller than 1 foot, and never smother weeds in the way Cow peas may do. It is therefore essential that the lands should be very thoroughly cleaned before sowing. Track forking is not sufficient and the whole area should be ploughed or forked to at least 6 inches and then broken down to give a loose, clean seed bed.

CHOICE OF SEED. There are a great many varieties of red peas, some good and some bad, and it is advisable for growers to use only seed of a variety which is well-known in their particular district. Mixed seed of several varieties should never be sown together, as it nearly always includes some inferior low-yielding types. Care should also be taken to obtain seed from plants that are free from diseases and pests, and special care should be taken to avoid seed infested with weevils.

TIME TO SOW. Sowing should be timed as far as possible to give the plants six to eight weeks of fairly rainy weather, and thereafter somewhat drier weather to ripen off the pods. This means that in normal years successions of red pea crops could be sown in different districts from mid-September to the end of May. If growers feel uncertain about the weather, to be expected at any particular season, it is a sound practice to divide up the seed into two or three lots, sowing these lots at two-week intervals.

SEED RATE. Large seed varieties, 2 bushels (128 lbs.) medium $1\frac{1}{2}$ bushels (112 lbs.) and small $1\frac{1}{2}$ bushels (96 lbs.) per acre.

SOWING AND SPACING. Red Peas should be sown in rows 2 ft. 6 ins. apart, with single seeds placed 8 inches apart in the rows. If the soil is moist at sowing time, the seeds ought to be placed 1 inch deep, but if the soil is rather dry, $1\frac{1}{2}$ inches deep.

AFTER CULTIVATION. Hoeing between the rows and hand weeding in the rows should be started as soon as the seeds germinate and be continued, to keep the land free of weeds, until all the bean pods are full sized.

HARVESTING STRING BEANS. Good quality string beans can only be obtained by handpicking every two days. The right stage at which to pick the pods is when they are full grown in length, but before the seeds start to swell up inside. At this stage the pods should snap with a clean break when bent. Two or three days later the same pods will tear instead of snap and will be stringy, and therefore of much less value for selling purposes.

HARVESTING MATURE RED PEAS. The usual practice in obtaining the dry peas is to collect the whole plants when they have withered and hang them, tied in bundles, in a shed to complete drying. This is satisfactory as long as much rain does not fall during the two or three

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weeks before harvest. If it does, the seeds inside the older pods will become thoroughly wet and may start to germinate. Should this seem likely to happen, all the ripe pods should be hand-picked as soon as they become brittle. In all cases drying should be done in places free of debris that might contain weevils.

SHELLING AND STORING. Whether whole plants or single pods are harvested it should be the object of the grower to dry and shell them as rapidly as possible. Shelling can be done most simply by beating the dry pods in a bag. The peas separated out in this way should be sorted and any broken and not properly ripened ones removed. The sound peas should be dried further in the sun, and then placed in clean tins, barrels or boxes for storage. To protect the peas against weevils, they may be covered with a 2" layer of slaked lime or wood ashes. Even if this is done, however, any peas to be kept for some months should be examined periodically, and exposed again to the sun to dry out moisture that the seeds will have absorbed while in storage.

YIELD. 10 to 15 bushels of 64 lbs. or in other words 640 to 960 lbs. per acre.

LIVESTOCK IN THE WEST INDIES.

By J. W. HOWE, Dip. Ag., B.S.A., M.Sc., Headmaster Government Farm School, Superintendent Government Stock Farm.

(Continued).

CHAPTER X.

FEEDING BEEF CATTLE.

In the West Indies, the majority of the beef cattle which reach the market are raised on grass, and receive practically no concentrated feeds to produce the fine finish so noticeable in cattle on the markets of the northern climates. For this reason the quality of beef in the tropics on the whole leaves much to be desired.

The demand for a high quality of well finished beef is limited in the Tropics, the greater portion of the demand is for a cheap product, which may account for the fact that little finishing of beef cattle is carried on. The labouring class, judges the beef not by the finish, but by the cost, and the more that can be obtained for a small amount of money, the better the meat in their opinion. This attitude is by no means conducive to the improvement in quality, which results by properly finishing a good type of beef animal.

With the limited demand for good quality of beef, there is not the premium paid for superior animals over those of inferior type and finish, and as a result there is little inducement for the penkeeper to finish his cattle before selling them for butchering.

For the most part beef cattle are run on pasture the year round and are usually marketed as four year olds. If a better type of beef animal was raised, there is no reason why the age of marketing should not be materially decreased. This would be to the advantage of the penkeeper, as he would then be required to keep his animals on pasture shorter time.

Feeding the Beef Calf—The beef calf, unlike the dairy calf is raised

on the dam, and it is therefore not as necessary to feed supplementary feeds in the early stages of growth. The calf will learn to eat grass at an early age, as long as it has a plentiful supply of milk from the dam proper development will result.

If it is seen that the calf is not getting sufficient milk, it will then be necessary to supplement the feed with some good growing ration.

Feeding from Weaning Time to Three Years of Age—During the period from the time the calf is weaned until it is three years old, the animals can be run on good pasture. Providing that the pasture is plentiful and of good quality the animal will make good gains in weight, and will improve in quality. During this time if the pasture is scarce due to drought, cane tops or molasses can be used as a supplement to pasture. Care must be exercised in the use of molasses to see that the animals do not get too much or digestive troubles will result. Molasses can be used to advantage with dry hay to increase the palatability. Molasses in most areas of the West Indies is very cheap and more of it could be used than is being used at the present time. Molasses will produce an excellent finish on beef cattle but should not be used in large amounts.

Finishing Period—Where it is desired to improve the finish on beef cattle and produce a better quality of beef, the animals should be brought in from the pasture, and placed in a smaller pen, and fed concentrated feeds. Of all the concentrates in the West Indies, coconut meal is perhaps the cheapest, and easiest to obtain. Beef cattle will take up to five pounds per head per day during a finishing period. Cattle being finished should also have access to good pasture or green fodder, but should not be allowed to graze over a large area.

The finishing period need not be longer than 60 to 90 days, the length of time required depending on the finish of the cattle when they are taken from pasture, to commence the finishing period.

Salt—Beef cattle need salt and it should be placed in the pasture in sufficient quantities that it is available at all times. As the loss of salt from being washed by rain may be large, it is advisable to provide small covered troughs in which to place it. Either rock salt or a coarse grade of granulated salt may be used.

Water—Beef cattle should have ample water provided in the pasture. The water should be clean, and plentiful. In some areas ponds are used as a means of water supply, and where no other supply is available this method is necessary. Pond water is not the best supply, as it is possible for the animals to contract some water borne disease, especially during the time of drought when the water in the ponds becomes very thick and stagnant. In certain areas no alternative water supply is available and ponds must be used. Care should however be taken to have the supply of water as clean as possible for the cattle.

CHAPTER XI.

MANAGEMENT OF BEEF CATTLE.

The beef herd does not require the constant supervision and attention to management as does the dairy herd, but it does nevertheless require sound management if it is to be profitable. Very often the margin of profit from the production of beef is small, and it is all the more necessary for the pen-keeper to properly manage his herd in order that the profit be as large as possible.

Since the beef herd is maintained mainly on pasture, to a large extent the profits derived depends on the pen-keeper getting the best gains on his cattle in the shortest time, and turning them off at as early an

age as possible. Providing that the finished animals have attained a weight sufficiently high enough to allow for the production of a good carcass when slaughtered, and providing the price is reasonable, there is little to be gained by keeping the animals longer. The earlier the age at which beef cattle can be turned off commensurate with a good profit being made, the less will be the cost of production.

In order to be able to turn off the cattle at an early age, it is vitally necessary that the peakeeper raise a type of animal which will fatten readily, and make the best gains for the feed consumed. Experiments have conclusively shown that animals of the true beef type will make more rapid gains than any other type, and the greatest profit in beef production is to be made from animals which conform to the beef type.

Shade—Some form of shade in the pasture is necessary for the beef herd, as in many cases they are not housed at all during their entire life. Trees form a good shade, but if trees are lacking in the pasture some form of shed with a thatched roof is necessary.

Shelter—In the rainy season, if the best results are to be obtained from the beef herd, provision must be made against weather. Long sheds with thatched roofs are most economical and are inexpensive to erect. A good shelter will more than pay for itself, especially for the cows with calves, as often the younger animal receives a decided setback, when exposed to the weather over a long period.

Castrating—The young bulls which are not to be used for breeding purposes, should be castrated, at the time they are weaned, which is usually at the age of eight months.

There are two methods of castrating cattle, by means of the knife and by means of the burdizzo. The latter method which consists of crushing the cords with a pair of pinchers known as a burdizzo, is rapidly gaining in favour, and a larger number of cattle can be done in a day than by the use of the knife. In the use of the burdizzo method, care must be taken to see that both cords leading to the testicles are properly crushed, or the animal will still be capable of breeding.

The knife method is preferred by some, and if this method is used the testicles are completely removed from the scrotum. It is imperative that the knife be sharp, and clean. After the operation has been performed the scrotum should be thoroughly disinfected, in order to prevent trouble from flies getting into the wound.

Dipping—Ticks on beef cattle seriously reduce the gains made by the animals, and dipping should be practised every 10 days, to keep the infestation of ticks at the minimum. The standard dip material used in Jamaica consists of 2 pounds of Arsenite of Soda, 3 pounds of Paranaph dissolved in 100 gallons of water. Commercial cattle dips can be used if preferred, as long as they are effective in the control of ticks.

Branding—Beef cattle require to be marked in some manner in order to tell which year they were born. The most satisfactory method is by branding with a hot iron. The iron should be clean, and the animals all marked on the same part of the body. The jaw, neck, shoulder, ribs or flank are spots most commonly used for placing the brand. Have the iron hot and allow it to stay on the animal for a few seconds, until it has burned into the skin, thus assuring a clear, deep brand-mark. After the cattle have been branded, they should remain under observation for a few days, until the brand sores have healed, and there is no likelihood of trouble with flies getting into the sores.

{To be concluded}.

SWEET ORANGE COMPETITION, 1940.**GENERAL RULES.**

1. Two competitions are to be held during the 1940 citrus season to determine if suitable local strains of sweet orange, (*Citrus sinensis*) or sweet orange x mandarin hybrids (*C sinensis* x *C nobilis*), or sweet orange x bitter orange hybrids (*C sinensis* x *Aurantium*) are available for export during—

(i) August--September, 1940,

(ii) April-May, 1940.

2. These competitions will be referred to hereafter as the "EARLY ORANGE COMPETITION" and the "LATE ORANGE COMPETITION."

3. The Early Orange Competition will be held at the head office of the Jamaica Agricultural Society, Kingston, during the first week of September, 1940, and the late Orange Competition will be held at the same office during the 1st week of May, 1940.

4. In both competitions judging will be carried out by three judges representing the Department of Science and Agriculture and the Jamaica Agricultural Society.

5. The characters upon which the fruit will be judged and for which marks will be awarded are described on the attached "Guide to the judging of oranges in the Jamaica Agricultural Society's Sweet Orange Competitions, 1940," and will, it should be particularly noted, include storage qualities as determined by cold storage tests covering a period of three weeks.

6. The decisions of the judges will be made public within six weeks of the date of either competition, and must be regarded as final.

7. Prizes of £7, £3 and £2 will be awarded to the type of fruit entered in each competition which receives the highest number of marks, always provided that the minimum number of marks allowed for each individual character is exceeded. (This is explained in detail in the "Guide to the judging of oranges").

Entrance Form.**JAMAICA AGRICULTURAL SOCIETY SWEET ORANGE COMPETITION, 1940.**

To the Secretary,
Jamaica Agricultural Society.
Kingston.

Sir, I,, of

.....Post Office in the parish of.....
.....wish to enter the fruit of a tree of
the sweet orange type, which is my own property, in the Early Orange Competition,
organized by the Jamaica Agricultural Society.

I have read the rules governing the Competitions and agree to the provisions laid down therein.

Please notify me not less than 10 days before the date of the Competition on which date I may expect the Jamaica Agricultural Society's Instructor to call to supervise the picking.

Signature.....

Date.....

Guide to the Judging of Oranges in the Jamaica Agricultural Society's Sweet Orange Competitions, 1940.

1. All entries must be accompanied by a statement from an Instructor of the Jamaica Agricultural Society to the effect that he has supervised the picking and transportation of the fruit and has

examined and numbered the tree from which they came. In cases where the Instructor's report gives reason to believe—

- (a) that the sample of fruit submitted is not representative, or
- (b) that the season of fruiting has been influenced by injury to the stem or branches, whether intentional or accidental, the judges reserve the right to disqualify entries.

2. In judging, marks will be awarded for the different characters as set out in the list below.

3. For an entry to qualify for a prize it must receive a total of not less than 80 marks and also a certain minimum number of marks for each particular character (for example an entry might receive over 80 marks but be seriously defective in one character, say firmness, and has to be turned down on this account).

SCHEDULE OF MARKS

CHARACTERS.		MAXIMUM ALLOTTED.	MINIMUM QUALIFYING.
EXTERNAL.	1. Size — Average diameter 2 5/16" to 3 3/8" 276—112 to the box.	8	5
	2. Shape. — Symetry, i.e., length by breadth, (up to 4 marks) Uniformity between fruits (up to 4 marks)	8	5
	3. Texture—Smoothness, evenness (up to 6 marks) absence of cracks or serious mechanical blemishes denoting susceptibility to 4 marks).	10	7
	4. Colour—bright attractive appearance (up to 5 marks)	5	3
INTERNAL.	5. Skin — thinness (up to 4 marks) ease of peeling (up to 4 marks)	8	5
	6. Juiciness—(up to 10 marks)	10	8
	7. Pulp — fineness of texture and absence of coarse pith (up to 6 marks) uniform size of segments (up to 3 marks)	9	7
	8. Seeds —Small number of seeds (up to 7 marks)	7	4
	9. Core — Compactness of (up to 7 marks)	7	5
	10. Flavour (up to 10 marks)	10	
	Keeping quality after 8 weeks as determined by—		
	(a) Soundness (up to 5 marks) (b) Firmness (up to 4 marks) (c) Juiciness (up to 6 marks) (d) Colour (up to 3 marks)	18	13
Total minimum marks qualifying		100	68
		...	80

RULES

GOVERNING ENTRY OF FRUITS INTO BOTH SWEET ORANGE COMPETITIONS.

1. Only fruits grown on a tree, the property of the person entering them, will be admitted.

2. Not less than 30 fruits must be submitted, and these fruits must all come from a single tree.

3. All fruits submitted must be picked in the presence of an Instructor of the Jamaica Agricultural Society who will call, for this purpose, not more than one week before the date of either Competition, and will also be responsible for despatching the fruits to Kingston.

4. The Instructor will paint a number on the stem of each tree with white paint and for the purposes of either Competition all fruits will be referred to by the numbers painted on the trees regardless of any names that their owners may have applied to them.

5. All entries must be accompanied by a statement from the Instructor* to the effect that:—

- (a) He has supervised the picking, numbering and transporting of the fruit,
- (b) The fruit submitted is representative of all the fruit on the tree in so far as size, shape and texture are concerned.
- (c) The tree from which the fruit came did not appear identical with any named commercial variety.
- (d) The tree from which the fruit came was carrying fruit of a similar stage of maturity on all main branches, was in a reasonable state of health at the time, and showed no evidence of having been girdled or seriously injured on the stem or branches at any time during the twelve preceding months.

6. All entries must be accompanied by a statement from the owner of the fruit entered that he or she is prepared to let the Department of Science and Agriculture and the Jamaica Agricultural Society obtain between them at least 200 buds from any tree, the fruit of which is entered, at a price not exceeding 10/- per 100 buds, at any time that these buds may be required during a period of six months following the date of either Competition.

7. Artificially coloured fruit will not be accepted.

8. Persons wishing to enter fruits for either Competition should first read carefully the "Guide to the judging of oranges in the Jamaica Agricultural Society's Sweet Orange Competitions 1940," and should then fill in the accompanying entrance form, which may be obtained on application to the Secretary, Jamaica Agricultural Society, 11 North Parade, Kingston.

9. Entrance forms for the Early Orange Competition must reach the Secretary by the 1st August, 1940.

10. Entrance forms for the Late Orange Competition must reach the Secretary by 1st April, 1940.

MARKETING NOTES.

Prices for local produce are as follows:—

<i>Annatto</i> ...	Well-cured, prime, red seed	13/- delivered	Kgn.
<i>Cocoa</i> ...	Ordinary ...	19/-	" "
	Estates Fertd. ...	19/-	" "
<i>Coffee</i> ...	Good Ordinary ...	28/-	" "
	Pine Ordinary ...	30/-	" "
	Manchester "B" ...	30/-	" "
	Manchester "A" ...	32/-	" "
<i>Goat Skins</i> ...	Well cured, free from holes ...	1/3d. per lb. dd.	Kn.
<i>Honey</i> ...	Pale Amber ...	2/9d. per gal.	" "
	Light Amber ...	2/6d.	" "
	Dark Amber ...	2/3d.	" "
<i>Kolanuts</i> ...	Well cured, sound quality	12/- delivered	Kgn.
<i>Lime Juice</i>	Good, fresh, green, top-pulp	1/1d. per gall.	
<i>Orange Oil</i> †	Sound quality—well filtered: Sweet & Bitter	4/6d. per lb. dd.	Kn.
<i>Sarsaparilla</i>	Well cured, red roots ...	38/- delivered	Kgn.
		nett wts.	
<i>Wax:</i> ...	Pure and clear ...	10d. per lb dd.	Kn.

*Instructors will be provided with forms for this purpose.

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KINGSTON.

USE OF MINERALS IN THE MAINTENANCE DAIRY CATTLE.

LECTURE by Mr. T. P. LECKY, B.S.A., *Stock Inspector.*

Introduction.

MINERALS in the feeding of Livestock have been little understood up to the latter part of the 19th century. Trials with the feeding on livestock gave very different results when fed the same proportion of carbohydrates and protein, thus showing there are other factors which influence growth, thus the study of minerals became a necessity. Experiments have been undertaken where scientific farming is being done. The results have been, that cattle which failed to do well under conditions of mineral deficiency, have become profitable after minerals were added. A study of the soils and fodder have explained many of the reasons why there was degeneracy of Livestock. The burning out of heavy-producing cows has been arrested.

In Jamaica, so long as we keep to the slow-maturing Zebu cattle, we do not find the need for minerals, as our pastures are able to support this type. With economical factors of production, such as the low price for dairy products and beef, it is necessary to introduce the early maturing cattle, such as the Jerseys, Guernseys, Angus and Devons. Due to economical conditions in their native countries, they have been evolved on the early maturing basis, because a farmer could not afford to keep a high percentage of unproductive animals, as we do in Jamaica, (where 60% to 66% are unproductive) as the cost of maintenance is too high.

Dr. Orr, on the Study of Pastures in the Tropics, said:—"The modern improved breeds of cattle with a rapid rate of growth, have been evolved in districts with cultivated pastures. The improvement of the breed and the pasture have gone hand in hand, and are closely connected. But in developing animal husbandry in new countries, sires of improved breeds have been imported to 'grade up' native cattle without any 'grading up' of the pastures.

"The common result has been that, as the grading up process proceeds, mortality increases. The natural herbage which is able to support in health, slower growing native cattle, which have evolved on the herbage is too poor in constructive material to support more rapidly growing animals. The equilibrium between the grazing animals and the herbage is upset, and the resulting mortality and sterility is really a natural process tending to the elimination of a type whose rate of growth and of production is greater than the herbage can support."

To further emphasize the influence of minerals on speed of growth, we may compare the mineral content of milk from different animals, and the speed with which they double their birth weight, as follows:— (According to Prosser and Abderhalden).

Species	Time in days to double wt. after birth.		The milk of the specie contains:—		
			Ash %	Ash in grams per 1,000 calories	
Man	... 180	...	0.25	...	3.7
Cow	47	...	0.72	...	10.5
Pig	... 14	...	1.03	...	10.9
Rabbit	6	...	2.50	...	15.0

What is Meant by Minerals.

When a plant or animal is burnt, the residue or ash is what is referred to as minerals. On analysis of the ash, the following minerals are found: Calcium, phosphorous, sodium, chlorine, potassium, manganese, magnesium, sulphur, iron and iodine. Of the above minerals, calcium, phosphorous, sodium and chlorine are liable to be short in the diet. Fortunately, calcium and phosphorous are found in bone meal, calcium in lime stone, and sodium and chlorine in common salt. Occasionally, there is a deficiency of iron and iodine, but as far as we are concerned in Jamaica, these do not play as great a role, as our fodder being insular, are generally well supplied.

Effect on Dairy Cattle.

The minerals control life's processes, and a deficiency results in a lack of thrift, poor health, emaciation and disease. The blood, lacking in sufficient minerals, lacks tone and resistance to diseases. Thus we find the early-maturing animals, not supplemented with minerals, fall an easy prey to pneumonia. Calcium and phosphorous build bone and aid in circulation. Phosphorous is found in the nerve centres. Calcium aids in the clotting of blood. Heavy producing cows, at the time of calving and after calving, draw heavily on the blood calcium for the milk. This depletion, if not supplemented by mineral feeding, or the animal not having a large reserve built up in her system, gets milk fever, which is due to a deficiency of calcium. Cows will draw the calcium out of their bones for the milk, thus weakening them, when they will easily break. I have seen cases where cows become so rheumatic, that they find it difficult to move about. Cases of mineral deficiency are becoming more apparent in Jamaica at present. The fœtus draws on the mother for its minerals, thus heifers lactating and in calf, and growing at the same time, are more liable to collapse under the strain.

The effect on growth is the most obvious drawback that we have. Our cattle are becoming fine-boned and degeneracy is marked after the second cross of northern blood. One knows that cows thrive best where they have brackish water, and this is due to the salt, which contains chlorine and sodium. Chlorine is essential, as it produces the hydrochloric acid, which is necessary for digestion.

Experimental work has proven that by feeding common salt, the growth and production increase. Cows have shown definite hunger for salt. The question of growth and development, is our greatest drawback to economical production. Heifers for dairying should calve early, but this is not possible or wise, if the animals are under-sized, as it produces 'stunting' and lack of constitution. If we could speed up growth, then we could breed earlier, which would save many heifers from becoming barren. The udders of heifers degenerate with fat, especially Jerseys, and fatness is no indication of mineral deficiency. Its important advantage lies in a higher percentage of cattle producing when we calve early, thus lessening over-stocking, which is mainly due to the extra year for heifers reared.

Because minerals fed to high grade cattle produces a hardier animal, and when added to pastures, produces a more luxuriant growth, in grading up it reduces the necessity for Zebu crossing, which always tends to reduce the efficiency of the herd, and to increase the number of discards. The rearing of heifers is expensive, and no one who can sell his milk will find it economical to make beef out of dairy stock

as these animals will not return more than 50% of what they cost to produce.

Phosphorous aids in the consumption of more roughage, thus helps to increase the feeding capacity of cows.

When cows are resting between lactations, they should build back the reserve amount of minerals in their system, especially calcium and phosphorous. With the quality of our grasses, if the period is not long, this is not possible. For heavy production, a cow should not be dried longer than sixty days, as stromatic cells commence to be laid down in the udder, and reduces its efficiency. Thus it is essential to feed minerals to our cows at this stage, as the cow, when in heavy production, will be unable to absorb sufficient minerals to supply the milk, and thus must draw on her reserve, or else reduce her supply, or her system must suffer. Calves produced from cows not well supplied with minerals, will tend to be small and weak, and a good start in life is absolutely essential for the future usefulness of the animal.

Lack of minerals, especially of phosphorous, produces sterility. The slow breeding of our cows on many pens, is of economical significance. On a Red Poll farm in Jamaica, I have known the dropping to be as low as 50%. Such a state, makes beef cattle rearing exceedingly expensive, as no farmer can make it pay under 66% dropping, at the low price for beef. This is true in our dairy, and one often encounters on dairy farms, a low fertility, (abortion places an important part) which tends to increase the number of boarders, or unproductive animals on the farm.

Causes of Deficiency.

The chief cause of deficiency is the high standard of the cattle, due mainly to an increased demand. When a 1,000 lb. steer is sold off the farm, 39.5—42 lbs. of minerals are removed. Thus if 100 head are sold annually, 4,000 lbs. of minerals are removed, or its equivalent of enough to fertilize 20 acres of grass or corn.

Every 100 lbs. of milk carries with it, 1 lb. of minerals. Thus on a farm which sells 400 quarts daily, 10 lbs. are removed, or about 3,600 lbs. of minerals annually. When the cows are brought into the stables and pens, the droppings and urine leaking away, removes a considerable amount of minerals from the pastures.

Quantity, Composition and Manurial Values of Different Classes of Livestock.

(Manures & Fertilizers Bulletin 364, Ontario Agr. College,
Ont. Dept. of Agriculture.)

lbs. MANURE PER 1,000 LBS. LIVE WEIGHT.

	HORSES	DAIRY COWS	STEERS
Lbs. per ton	35—45	70—80	40—50
Nitrogen	11.8	9.7	13.8
Phos. Acid	5.6	5.4	5.6
Potash	14.6	9.4	10.6
Value per ton	\$2.57	\$2.00	\$2.57

Thirty dairy cows will produce 1 ton per day. Now if 20% of this is lost by being stabled, then in five days thirty cows will produce 1 ton of manure. Thus with every thirty cows 1 lb. of phosphoric acid and 2 lbs. of potash is lost daily, which would be over 1,000 lbs. annually lost from the farm.

Lime is being removed by the animals and by leaching out of the soil along with other minerals that enter into the soil solution. When we consider that the greater part of our pastures are uncultivated, (whereby minerals from the lower strata are made available) and nothing is being returned, we will realise how, day by day, the soil is being depleted, and thus the major reason for fodder becoming less and of a poorer quality.

Correcting Mineral Deficiency.

A. By Pasture Improvement and Management—The study of pasture conditions all over the world has shown that there are areas of deficiency, especially where there are uncultivated pastures. Our pastures require liming, and marl may best be applied. Our pastures should be ploughed or forked and a crop raised, whereby a part of the cost of clearing, tillage and fertilizing is borne by the crop. Soiling crops could be used to the greatest advantage, and in areas such as Manchester, Clarendon and St. Catherine that suffer from periodical droughts, areas for silage crops could be fertilized and tilled, as the increased fodder and the increase in production during the dry season, when there is a great demand for milk, would pay for the extra cultivation and manuring. Our pastures are, on the whole, poor in fodder, thus the dairy cows have to be on their legs too long and travel too far to obtain sufficient fodder. 50% of the feed that go in production is utilised purely for locomotion. The quality of our fodder is poor, hence the animal is required to eat too much to obtain the necessary amount of nutrient for production, hence extra energy is called for the extra digestion, which in turn, limits the production. Grasses low in minerals, are not relished by cattle, with the result of very patchy feeding in our pastures, and over-ripe crab grass and other fibrous condition. As the fertility of our pastures decreases, plants better adapted, replace the good fodder, and these are not relished by cattle, thus limiting the total digested fodder per acre. From this you will see the necessity of improving our pastures if we expect to raise economical producing cattle. Unfortunately, there is no technique worked out for Jamaica, whereby we can improve our pastures, because one would have to establish better fodder plants.

Legumes are relatively scarce in our pastures, which are the plants that carry a high percentage of calcium, and by feeding legumes, the deficiency of calcium is, to a great extent, corrected.

Comparing our grasses with the English cultivated grasses, we find that ours are bordering on the deficiency side:—

	English Cultivated Pasture	Hay	Guinea Grass Uncultivated	Uncultivated Hay deficient in minerals that produce "stiffs" or grass sickness or "sweeten."
Calcium Oxide	1.004%	0.95—1.43%	0.79%	0.68—0.35%
Phos. Acid	0.735%	0.42—0.81%	0.37%	0.22—0.44%
Potash	3.177%		3.57%	

We must not blame too much our climate when our animals, as we grade up, deteriorate, but rather consider the mineral deficiency of our pastures. The minerals are connected with the protein of the fodder, thus as one increases or decreases in the same stage of growth, the other proportionately decreases or increases with their sum total—*degeneracy of livestock or improvement.*

Professor R. G. Stapledon said in the "Spectator":—

"More and more we shall come to think and act in terms of grass-production and fertility, and not in terms of time-worn and neglected pastures and meadows. There could be no bigger revolution in British farming than that brought about by purposeful activity accompanied by the plough and cultivations on that huge acreage in inferior permanent grass which at present cries shame to the nation and pours scorn and derision on the ancient art of husbandry."

B. By Feeding Mineral Supplements.

Common Salt—Teach a few cows to lick the salt, and these will in turn teach the rest. Rock Salt may be used, but fine salt may be found more economical as one can mix about $\frac{1}{2}$ lb. blue stone (copper sulphate) in 100 lbs. coarse salt or fine salt, to prevent stealing—while people will steal the rock salt. A small stand should be made, about 2 feet above the ground and covered so that rain will not dissolve the salt. The shed above the salt should be high enough so that it does not prevent the cows licking the salt, and the stand must be convenient to young stock. It may be fed to the cows while in the stanchions, or mixed with the grain feed at the rate of 2 lbs. per 100 lbs. feed.

Bone Meal—This provides phosphorous and calcium, which are the main minerals lacking in our feeds, and are responsible for the slow growth and low fertility among high grade cattle. Bone meal should be fed in relationship to the pasture and type of cattle. As a general rule 2-4 lbs. per ten pounds of salt should be fed to correct the deficiency in our pastures. After the cows have been taught to lick the common salt, gradually add the bone meal to it, starting with about 2 ozs. to 10 lbs. salt, and increase the bone meal as the animals become accustomed to it, until the required amount is reached. Fine salt is better to be used and is relatively cheap. The bone meal must be thoroughly mixed in. Bone meal may be bought at the Agricultural Society's Office. To the dairy feed 1 lb. to 100 lbs. feed.

Lime.—Owing to the lack of legumes in our pastures, the proportion of phosphorous to calcium is higher than is best for proper growth, therefore it is advisable to add $\frac{1}{2}$ —1 lb. air-slaked lime to the salt mixture. This must again be added gradually. This may be added to the dairy feed at the rate of 2 lbs. to 500 lbs. feed.

Ashes.—This may be added gradually up to $\frac{1}{2}$ lb. to the mineral mixture and to the feed as in the case of lime.

The following licks are recommended:—

CATTLE, SHEEP AND HORSES.

- | | |
|--------|---|
| No. 1 | 10 lbs. fine salt |
| | 2—4 „ bone meal |
| | $\frac{1}{2}$ —1 „ air-slaked lime (let lime be exposed for as long as possible.) |
| No. 2. | 10 lbs. fine salt |
| | 1 $\frac{1}{2}$ —3 „ bone meal |
| | $\frac{1}{2}$ „ air-slaked lime |
| | $\frac{1}{2}$ „ ashes. |

When a pig is off its feed for no apparent cause, a good plan is to give it a dose of Epsom salts or linseed oil.

Pigs.**No. 1 For fast growing pigs:—**

Salt	6 lbs.
Bone Meal	5 lbs.
Sulphur	2 „
Ashes	2½ lbs.
Air-slaked Lime	2½ lbs.
Glauber Salt	1 lb.
Epsom Salt	1 lb. — 20 lbs.

Feed a teaspoonful at each feed to small pigs. Large pigs and pregnant sows—1 tablespoonful.

No. 2. Charcoal (crushed) 12 quarts
 Bone Meal 6 lbs.
 Salt 6 lbs.
 Sulphur ½ lb.
 Slaked Lime 1 lb.

Mix thoroughly and place in a box in a dry place where the pigs can lick it at will.

Amount salt required per head in cattle, is 1 ounce.
 100 head require 6½ lbs. per day and 1½ lb. bone meal }
 50 lbs. salt per 100 head adult cattle } per week
 8 lbs. bone meal per 100 head adult cattle }
 Salt is 9/- per 200 lbs.

Can it pay to Use Minerals?

As an answer to this I will give the following facts:—

- Against:—**
1. Cost of fertilizers for pastures.
 2. Cost of application.
 3. Hilly condition and difficulty of working our pastures.
 4. Cost of mineral supplements.
 5. Low price of products.
- For:—**
1. Early maturity.
 2. Increased fodder.
 3. Greater carrying capacity.
 4. Increased growth and production.
 5. Possibility of more uniformity in cattle, because grading can be extended.
 6. Reduced number of calves, hence fewer discards.
 7. Better stock means greater demand, and less bargaining.
 8. Healthier animals, more contented ones.
 9. Improved dairymen, hence a higher social standing.

Conclusion.

At present our livestock are not what one would wish to see—the size and production are small. We have to contend with parasitic diseases and poor feeding, which are the major causes of degeneracy, and whatever is being done to improve the quality of our stock, will be of great value to the industry.

There is not a doubt that our cattle, on the whole, are suffering from mineral deficiency, and there are evidences to substantiate this statement. We require more work on the subject, to best see what can be done economically. From observations with cattle, I have seen the good effect of using it. Many of our farms are not well managed to be able to introduce it, while others should take advantage. The development of our pastures is essential, but the detailed work is yet to be done, and until this is accomplished, we are unable to advise on the best methods.

With an outlet for milk, and the low price, the future will see a great development in our livestock, and an improvement in our technique. Ultimately, only the good cows will pay, and the good type of farming. When our farmers realise that a plant running at 30% or 40% efficiency cannot pay, if the price of the product sold is low, he will then have to pay some attention to speed of maturity, number of discards and the amount of calves reared.

Finally, if we rear all the calves born, to be dairy cattle, then the beef market will be ruined by the quantity of cheap meat thrown on to it. Therefore, for the future of our Island, let us aim only at the best, and produce the best, so that our dairy industry will be a profit. As we get nearer our ideal, the greater will be the demand for minerals, as it is impossible to improve livestock without increased mineral consumption.

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THE DEVELOPMENT OF THE CASHEW-NUT INDUSTRY IN INDIA.*

Introduction.

MANY tropical fruits of economic importance hitherto unknown are now absorbing the attention of the grower as well as the commercial man. For instance, within a generation, the banana (*Musa* species) has passed from a rare luxury to a staple food product, the pine-apple (*Ananas sativus*, Lindl) from a little known fruit to an important one which is now sold in millions of cases of fresh and canned fruit from the Hawaiian Islands. The cashew-nut (*Anacardium occidentale*, Linn) which is no less important than banana and pine-apple has been until recently miserably neglected as it was not deemed of much value as an article of consumption or purposes of trade. Like other forest trees, the cashew-nut tree also suffered from the axe of the foresters causing a serious national drain. With its recognition as an article of consumption as well as one yielding several by-products of economic importance which promises the development of international trade, the cashew-nut is now receiving the serious attention of the grower and the commercial man, who have begun to take up its cultivation and develop internal as well as overseas trade.

The cashew-nut received further fillip by its growing popularity in the confectionary trade of America and Europe. As a result of this, a flourishing export trade in cashew kernels has now been established on the east and west coasts of India.

*Adapted from an Article by I. A. SAYED, B. Ag., College of Agriculture, Poona, published in *Agriculture & Livestock in India*, Vol. IX, Part I, January, 1939.

The outbreak of the World War in the year 1914, however, considerably hindered the export trade of this commodity but the post-war period saw it gradually reviving and a brisk foreign demand is now reinforced.

Cultural Requirements.

The cashew-nut is not fastidious about soil conditions in which it grows. It easily adapts itself to varying soil and water conditions without impairing its productivity. It thrives best on sandy soil in the neighbourhood of the sea. The tree is intolerant of frost. It withstands drought remarkably.

The satisfactory feature of the cashew-nut plantation is that it does not involve a heavy capital out-lay as preparatory tillage, manuring, etc., can be dispensed with. However, the tree is considerably benefitted by systematic cultivation.

The cashew-nut tree does not stand transplanting and, therefore, the seeds are sown fresh *in situ* in June spaced at fifteen feet apart. Thus 193 plants are stocked in an acre. The tree commences to bear after three years and continues for about fifteen to twenty years although instances of trees bearing for over thirty years are not uncommon. Thereafter, the tree exudes a gummy substance and renders it unfruitful. The crop ripens in summer.

The fruit or the nut which is about one inch in length and kidney shaped develops upon the pyriform fleshy body which is three times as large as the nut. The 'apple' as it is termed, assumes red and yellow colour on ripening and is formed by the enlargement of the disc and top of the peduncle. The 'apple' is two inches to four inches long, almost full of juice, slightly acidic and is often used in preserves.

A fifteen to twenty year old tree yields annually on an average 150 lbs. of apples and 20 lbs of raw nuts. This yield when commuted to money value works out as follows:—

	Rs.	A.	P.
1. 150 lbs. of apples sold at 100 per anna ...	0	12	6
2. 20 lbs. of nuts yielding 2 lbs. of kernels sold at 2 lbs. per rupee ...	1	0	0

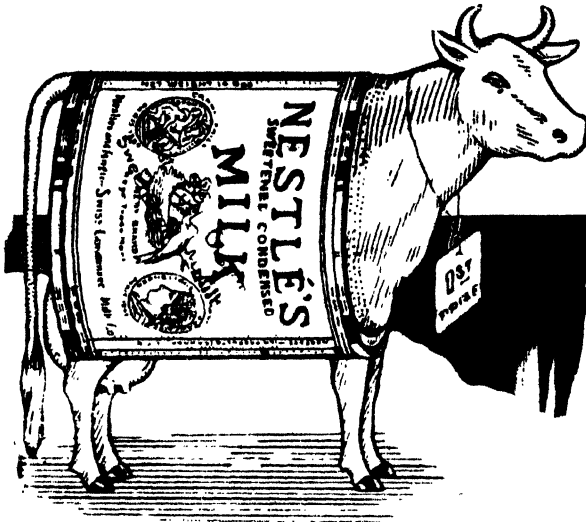
Income from apples is always doubtful as, at present, their utilization for the manufacture of liquor, vinegar, etc., is negligible. The income from the nuts is always certain.

Products of the Cashew-nut.

The cashew-nut tree yields several economic products but the principal ones worthy of mention are (a) the kernels of the nuts, (b) a liquor distilled from the fermented juice of the apple and (c) the oil obtained by roasting the pericarp of the nut. It is, however, regretted that with the exception of the kernels, the other two have hitherto been not exploited successfully in spite of the knowledge that in them also lies the potential source of income to the grower and revenue to the State. These products will be dealt with in the order of sequence.

(a) The Kernels of the Cashew-nut.

The importance of the cashew-nut industry in India at present lies in the value of its kernels which are exported in considerably large quantities to the United States of America and to a small extent to the continent of Europe where they are utilised in the confectionary trade. The kernels are required to be shipped without shells properly processed as they are not edible in raw state.



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- Kingston.

"Processing" or Curing of the Cashew-nut.

Curing is done by roasting the nuts which causes the shells to split, thereby facilitating the removal of shells from the nuts. The roasting operation has to be done with caution as oil contained in the pericarp gives out vapours which are injurious to the human face and the eyes.

The following operations are involved in the processing of cashew-nut:—

1. *Roasting*.—The factory owners [Sayed, 1931] according to the magnitude of output, purchase raw nuts either locally or import from other parts of India and outside it. The nuts are brought to an open drying yard and spread evenly for uniform drying. On complete drying, the nuts are roasted in an open iron pan placed on a circular earthenware furnace erected three feet above the ground and fed by the cashew-nut shells. The roasting pan which is three feet long and two feet broad and has a lever and counter weight arrangement is fed with a small quantity of nuts (20 to 30 lbs.) each time and stirred vigorously by means of long iron ladles for a minute or two. A little water is sprinkled over the nuts to extinguish the fire burning the shells and are immediately thrown aside by means of simple lever adjustment. This operation is carried out by two men. The daily (six hours) output of roasted nuts amounts to 6,720 lbs. Women not more than three, before collecting the roasted nuts for shelling, sprinkle ashes over them to dry out the oil which would otherwise cause blisters on the skin.

It may be stated here, that it has not been found possible to replace open-pan method of roasting by roasting in an oven on account of the difficulty of either the nuts remaining tough and leathery at 100°C. or kernels becoming discoloured when heated at a temperature of 120°C. [Joachim, 1936].

2. *Shelling*.—Shelling, which is invariably done by women and sometimes by boys who are employed on contract system, is carried out in a spacious hall specially erected for the purpose. Shelling is done with a wooden mallet.

3. *Peeling*.—The kernels after shelling are partially dried in a specially constructed oven to facilitate peeling of the adhering thin skin which is pinkish to reddish brown in colour. Drying of kernels, besides facilitating the removal of the inner coat, removes excess of moisture from them and thus prevents a tendency to mouldiness in storage. The oven consists of five chambers on either side partitioned by a wall with a flue at the bottom. The kernels are filled in long iron mesh trays six feet long and two feet broad which are placed in these chambers where a uniform temperature of 70°C. is maintained. At high temperature, kernels become too brittle and consequently considerable loss due to excessive splitting occurs. This process lasts for six hours when the trays are taken out and skin peeled off carefully. Peeling is done by hand. Peeling can also be effected by spreading the kernels on an open yard fully exposed to the sun. This process, however, is slow occupying nearly two days to effect complete drying. Peeling is entrusted to women and each woman peels from twelve to sixteen lbs. of kernels in a day earning on an average six to eight annas. The yield of kernels after peeling is 80 to 90 per cent.

4. *Sweating*.—The clean kernels are further subjected to an indispensable process of 'sweating' to prevent splitting and breaking as only whole kernels are required for export purpose. The 'sweating' receptacle consists of six chambers each containing a long rectangular shallow tank of water made of cement. The dimensions of this tank

correspond with that of iron mesh trays mentioned above. The trays containing clean kernels are placed over the tank in sweating chambers for the absorption of moisture. The kernels are sweated for a period of two to three hours depending upon the atmospheric conditions and the nature of kernel. When the outside temperature is cold, trays are sweated for three hours and when hot, for two hours only.

5. *Grading*.—Kernels after sweating are graded for the foreign market according to size and quality as follows:—

1st grade	...	...	Sound and big sized kernels.
2nd grade	...	...	Sound and small sized kernels.
3rd grade	...	...	Halves and broken kernels.
4th grade	...	...	Rejects and spoils.

The first two grades are exported to foreign markets; the first fetching a much better price than the second.

Grading is also done by women who have proved proficient in this process as in shelling and peeling. While grading, diseased and over-baked kernels are sorted out separately to be disposed of locally.

6. *Packing*.—Packing of first and second grade kernels for the export trade is effected in tins of 25 lbs. capacity. Some factory owners also use tin-lined wooden boxes with a holding capacity of 112 lb. of clean kernels. When using the first type of container which is cheaper than the second, packing consists of laying two ounces of oil paper at the bottom over which the above quantity of kernels are put. The top is stuffed with strips of oil paper to avoid breakage by internal movement during transit and finally the cover is hermetically soldered. The container is then exhausted, which is effected by making a vent hole in the centre of the cover through which air is removed by means of an air pump. Complete exhaustion is accomplished when the pressure gauge fitted on to the pump indicates 10 lbs. pressure and immediately the vent hole is soldered. Since it is not possible to create a perfect vacuum, some packers charge the kernels with carbon dioxide gas which serves as a preservative. This practice is now discontinued as it is considered objectionable by some importers.

The kernels are now packed by exporters by what is known as the 'Vita pack' process which consists of vacuumising the tins automatically and charging them with a compressed carbon dioxide gas by the control of a lever adjustment. Packing kernels by this process is accepted by the continental importers but not by the United States of America owing to the patent which the latter holds. Tins containing kernels for export to the United States of America are simply vacuumised and sealed automatically without being charged with carbon dioxide gas. Even by the latter method, kernels keep well for over two years. The 'Vita pack' process can also be successfully adopted in our internal trade.

Growth and the Development of the Cashew-nut Industry.

The fact that the trade in cashew kernels in the overseas markets is considerably stimulated since the last seven or eight years needs no emphasis. This trade both export and import has rapidly developed along several centres on the east and west coasts of the Indian Peninsula as a result of which the Bombay and Madras Presidencies at present command almost monopolistic position as regards the supplies of cashew kernels. This is substantiated by the fact that out of the total production in India [1937] of about 33,000,000 lbs. of cashew-nuts, 32,000,000 lbs. were exported to foreign countries; the United States of America alone importing 22,500,000 lbs. valued at Rs. 6,57,833.

MARLIE HILL JUVENILE VEGETABLE GROWING COMPETITION, 1939.

This competition was inaugurated by Mr. John Thompson, former Headmaster of the school during the year 1929, and has become a permanent project in the work of the school. Mr. Thompson has been promoted Assistant Superintendent of the Dinthill Practical Training Centre. His successor, Mr. Leo. A. Spence, has made a brilliant start in organizing this very successful competition.

Keeness has been shown by the high standard of the exhibits and the large number of competitors.

The following are some of the outstanding features recorded :

1. Conservation of soil, moisture, and fertility, accomplished by contour trenching. This practice was fairly general on all the plots.
2. The selection of crops in relation to the period of the year, and to soil conditions.
3. Preparation of land and application of organic manure well in advance.
4. Concentration on a small variety of crops, and the production of them in a sufficiently large quantity for marketing.
5. Co-operative marketing.
6. The very keen practical interest displayed by the adults in the district.

Thanks are offered to all who have contributed to the success of this competition.

The following are the Prize Winners:—

Class "A"—Boys out of School.

Arthur King—1st.
G. Challenger—2nd.
Isaac Laing—3rd.

Class "B"—Senior Boys in School.

G. Sterling } 1st
Alvin Henry }
Melvin King—2nd.
Noel Thomas—3rd.

Class "C"—Senior Girls in School.

Thelma King—1st.
Grinia Douglas—2nd.
Gwen Smith—3rd.

Class "D"—Junior Boys in School.

Clifton Sterling—1st.
Fitzbert Wright—2nd.
Morris Parker—3rd.

Class "E"—Junior Girls in School.

Violet Graham—1st.
Ivy King—2nd.
Eugenie Whitely—3rd.

Class "F"—Adults.

Mrs. Inez Shaw—1st.
Adeline Wright—2nd.
Ambroze Roofs—3rd.

NOTES ON ACKEE (*Blighia Sapida*).

By W. L. BARNETT—GOVERNMENT CHEMIST.

THE ACKEE—*Blighia sapida*—which grows into a medium sized tree 20-30 feet in height, was introduced into the West Indies from tropical West Africa and is mentioned as existing in Jamaica as early as 1782.

2. The plant is grown in the moist or semi-dry areas up to about 2,000 feet for its edible "fruit". This consists of a cream-coloured fleshy aril attached to the base of the shiny black seed. Normally three seeds are borne in a bright red capsule which opens when mature.

3. It is generally believed that unopened ackees are poisonous, also that the brick red integument which connects each aril to the placenta is one of the sources of "ackee poisoning" and should be carefully removed prior to using the ackee as food. This may be considered a necessary precaution also in the case of expressing ackee oil.

4. The ackee belongs to the family Sapindaceæ and is described by Fawcett and Rendle in "Flora of Jamaica" published by the British Museum in 1926. It possesses large abruptly pinnate leaves borne alternately and usually crowded at the ends of the branches. There are generally four—sometimes five pairs of leaflets, opposite, entire, glabrous, ovate with prominent venation on abaxial surface.

5. The inflorescence is an axillary panicle, usually as long as the leaves, bearing many greenish-white, polygamous flowers; the calyx is five parted, there are five petals, eight stamens and a three-celled ovary with a single ovule in each cell. The fruit develops into a red-coloured, fleshy capsule, three-celled; three valves with septa in the middle. The seeds are back, one in each cell, with a large fleshy aril round its base, the aril attached to the placenta by a red membrane.

6. Propagation is by seed, the trees normally coming into bearing three to four years from planting. It is also possible to grow ackee from cuttings, but this method is not often practised.

7. Ackee grows in a variety of soils throughout Jamaica, but appears to prefer a deep loam in areas of medium to heavy rainfall. The crop is not cultivated on a large scale and there is considerable variation. Selection of suitable types for oil production should involve extensive work in the testing of existing material.

8. Ackee oil (also spelt akee) is obtained by pressing the arillus of the ackee fruits after removal of the seeds. It is a yellow oil, frequently with a peculiar odour and sometimes an unpleasant taste. It is probable that if care is exercised in removing all of the undeveloped seeds and the red tissue which joins the seeds on to the arillus that a more bland oil with practically no odour or taste would be obtained. The oil sets to a yellow buttery mass at temperatures round about 60 degs. Fah.

The oil has the following constants:—

† Specific Gravity at 99-100 degs. C			
(water at 15.5 C D)...	...	...	0.867
Melting point	...	...	25-35°C
Solidification Point	...	...	20°C
Hehner value	...	...	93
Reichert value	...	...	0.9
Saponification value	...	...	194.6
Iodine value (hubl)	...	...	49.1
Acid value	...	...	20.1

The fatty acids have the following constants:—

Specific Gravity at 99—100 C	...	...	0.8965
Melting point	...	...	42-46° C
Solidification point	...	...	38-40° C
Saponification value	...	...	207.7
Iodine value	...	...	48.4
Distillation range (without decomposition)	...	...	220-225° C

The oil cake contains about 25% of oil which can be extracted with solvents.

The composition of the arillus of the ackee is as follows:—

Moisture	...	...	61.80—63.20 per cent.
Ash	...	...	1.52 — 1.44
Protein	...	...	4.68 — 4.16
Oil	...	...	17.80—16.02
Crude fibre	...	...	1.73 — 1.57
Carbohydrates	...	...	12.47—13.61

The immature ackee seeds, as found in unopened ackees, contain a saponin-like glucoside which if eaten may cause the so-called ackee poisoning. It is improbable that any of this poisonous substance would be found in the expressed oil.

BRANCH NOTES.

CLARENDON: Arthur's Seat; Croft's Hill P.O.—Meeting held 4.8.39. Present: Mr. N. C. Wilson, President; Mr. M. A. Davis, Asst. Secretary, and 12 members. Members decided to purchase a grindstone. The President gave a full report of the Half-Yearly General Meeting held in Kingston. The meeting was terminated by the singing of "The King."

M. A. DAVIS,
Secretary.

Beckford Kraal: Beckford Kraal P.O.—Meeting held 3.7.39. Present: 11 members, 3 visitors, and the Instructor. A delegate was elected to attend the Half-Yearly General Meeting. Reports of Authorized Persons were taken. The children of the Mt. Liberty School were asked by the Instructor to participate in a Juvenile Exhibition to be held at Chapelton on the 7th August. The Instructor addressed the meeting. The singing of "the King" terminated the meeting.

J. A. SWEENEY,
Secretary.

Croft's Hill: Croft's Hill P.O.—Meeting held 15.6.39. Present: Mr. Paul McKenzie, President; Teacher V. E. Mitchell, Secretary, and 8 members. Correspondence re Half-Yearly General Meeting was dealt with, and delegates were appointed. The Secretary was instructed to ask the Parochial Board to receive a deputation re roads and water supply. A resolution calling on the Sugar Board to give a Bonus on canes sold in view of increased prices abroad, was discussed and passed. The meeting adjourned.

ERNON PERKINS,
Asst. Secretary.

Thompson Town: Thompson Town P.O.—Meeting held 6.7.39. The non-attendance of Authorized Persons at meetings was discussed. There was a large attendance of members and visitors. The Instructor and Mr. M. G. Boothe, M.P.B., for Clarendon, were present. The Instructor gave a lengthy and animated address on the necessity for planting catch crops. The meeting was terminated by the singing of the National Anthem.

S. A. LENNON,
Secretary.

Sunbury: Spaldings P.O.—Meeting held 11.7.39. Present: 18 members, all officers, and Instructor J. A. Graham. Mr. J. Donaldson presided. Correspondence was dealt with. Mr. Graham addressed the meeting. He promised to arrange for a Tree Planting Day. Members expressed their gratitude for the road which had recently been constructed by the Parochial Board. The singing of "the King" ended the meeting.

N. KNIGHT,
Asst. Secretary.

HANOVER: Kendal; Cessnock P.O.—Meeting held 19.7.39. Present: Messrs. R. T. Williams, President; D. O. Haase, Secretary, and 15 members. The inter-

esting features of the meeting were: two resolutions dealing with local matters, which were discussed; a song rendered by a member, and an address by the Secretary, who stressed the necessity for rearing pure-bred small stock and poultry, and gave valuable hints as to how interest may be aroused, and maintained, in the Branch. A debate was planned for the next meeting. The meeting terminated with the singing of the National Anthem.

D. O. HAASE,
Secretary.

PORTLAND: Belvedere; Prior Park P.O.—Meeting held 9.6.39. Present: Mr. T. G. Dawkins, 1st Vice-President; Mr. Edward Jones, 2nd Vice-President, and a few other members. The Treasurer presented a statement, duly audited. The Secretary was directed to write to the Superintendent of Public Works about some very dangerous curves on the road. The meeting adopted the report of a committee appointed to draw up regulations for a Yam and Vegetable Competition to be held during May, 1940. A. P. Muir reported. The meeting terminated.

W T. MCKAY,
Secretary.

Bybrook: Skibo P.O.—Meeting held 13.7.39. There were present thirteen members, the Instructor and many visitors. Reports of A.P.s were given. The matter of a Ticket Distributor was discussed. Report of delegates to the Half-Yearly Meeting at Pt. Antonio was adopted. Instructor Wilmot presided at the concert which ensued. The Chairman congratulated those who had rendered items. The singing of the National Anthem brought the meeting to a close.

I. M. FACEY,
Secretary.

Mahoe: Bangor Ridge P.O.—Annual meeting held 22.6.39. Present: Messrs. D. Jackson, J. Boyd, J. O. Grant, Mrs. R. Grant, Miss W. Boyd and 12 other members. The annual report was read and confirmed. Congratulations were given for the able work done during the past year by the officers. The Treasurer's report was submitted. Election of officers: Mr. D. Jackson, President; Mr. J. Boyd, 1st Vice-President; Mr. R. J. Graham, 2nd Vice-President; Mrs. R. Grant, Treasurer; Mr. J. O. Grant, Secretary; Miss W. Boyd, Asst. Secretary. Committee of Management: Messrs. E. Walker, R. Boyd and S. Lewis. The President suggested that a demonstration plot should be established in the district. Mrs. R. Grant and Mr. D. Jackson gave helpful suggestions. An interesting meeting was terminated by the singing of the National Anthem.

J. O. GRANT,
Secretary.

Rock Hall: St. Margaret's Bay P.O.—Meeting held 13.6.39. Present: 13 members, several visitors including Messrs. N. V. Thompson and C. L. A. Shirley of the Portland Parochial Board, and the Secretary. Mr. R. M. Scott, 1st Vice-President, presided. The Secretary explained that resolutions passed had been forwarded, and that delegates had attended the meeting of the Portland Branches Associated. He also explained that the deputation had attended the May meeting of the Board and that Messrs. Downer, Dunn, and Abijah Brown had been carrying out experiments with fertilisers. Mr. Shirley gave his experiences with the same fertiliser. Correspondence was dealt with. Mr. Scott reported that a deputation consisting of himself, Messrs. Gardiner and V. Z. Brown had visited the Portland Parochial Board. In the absence of the Secretary, Mr. Gardiner had been voted Chairman of the deputation. The road needs of Rock Hall and its environs were stressed. Report of the deputation was read. The members were heartily thanked. Delegates to the Half-Yearly Meeting of the Portland Branches Associated presented their report. Mr. Scott referred to the speakers, especially Mr. Hanson who had spoken on Small Stock. Mr. Patterson emphasised the value of goat manure. The Secretary outlined the course of the meeting and suggested that Mr. Hanson be invited to one of the Branch meetings. A hearty vote of thanks was accorded the delegates for their report. Roll Call was taken and some members paid fees. Three Authorized Persons reported continued vigilance. A. P. White reported one attempted arrest for larceny of bananas, and an arrest for goat stealing. The Secretary pointed out that the Branch should undertake some form of agricultural development. The meeting was concluded.

E. V. METCALFE VAUGHAN,
Honorary Secretary.

ST. ANDREW: Paisley; Border P.O.—Annual meeting held 23.5.39. Present: the President, 1st and 3rd Vice-Presidents, the Secretary and 12 members. The Secretary's report for the year was highly appreciated by the meeting. It was agreed that the name of the Branch should be changed to Paisley-Mount Charles. Resolutions were passed re (1) Curves on the Richmond Road; (2) Registrar of Births and Deaths; (3) A Justice of the Peace for Mt. Charles and the surrounding districts. Election of Officers: Mr. W. J. Hawthorne, re-elected President; Messrs.

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C. R. Holmes, J. S. Morrison, R. Hussey, 1st, 2nd, and 3rd Vice-Presidents respectively; N. Hawthorne, re-elected Secretary; Miss J. Ramsay, Assistant Secretary; Mrs. H. Henry, re-elected Treasurer. Managing Committee: Messrs. R. Smellie, H. Henry, W. Hussey, Aaron Walker, and Mrs. Esther Yates. A.P. Henry reported "all correct." An enjoyable evening having been spent, the meeting rose with the singing of the National Anthem.

NORMAN HAWTHORNE,
Secretary.

ST. ANN: Pedro: Bensonton P.O.—Meeting held 26.6.39. Present: Mr. J. Carter, 1st Vice-President; Messrs. T. E. Sams and G. Grant, Vice-Presidents; J. Nembhard, Treasurer; 10 members, 8 visitors and the Secretary. A letter was received from the Parochial Board informing the Branch that the resolution re Burnt Ground water supply is under consideration. Delegates' report was given re the meeting of the Associated Branches. It was decided that a corn competition should be held next year. The Branch decided to purchase a Coffee Pulper. An article from the March issue of the Journal re White Yam Competition was read. The singing of "the King" ended the meeting.

AUBREY I. FRANCIS,
Secretary.

Thicketts: Keith P.O.—Meeting held 21.7.39. Present: L. C. Morris, 1st Vice-President; E. F. Harvey, President; I. Wallace, 2nd Vice-President; Instructor Robotham, 19 members and 2 visitors. A water supply and the Home Castle Land Scheme were discussed. The House agreed that further enquiries be made. Mr. Robinson was introduced as a new Instructor in the parish. The Instructor gave a very useful address on corn planting, for which he was thanked. The meeting terminated with the National Anthem.

T. A. LINTON,
Secretary.

Whitehall—Blackstonedged: Blackstonedged P.O.—Annual meeting held 10.7.39. Present: The officers, 17 members and several visitors. Mr. D. V. Thomas, a visitor, addressed the meeting. The question of affiliation with the Associated Branches was discussed. Report of the Secretary and a financial statement were presented and adopted. Election of officers: Messrs. R. Forbes, J. Taylor, J. Higgins, W. Forbes and S. Brown were re-elected President, 1st and 2nd Vice-Presidents, Treasurer and Secretary, respectively. Mr. I. Vincent was elected Assistant Secretary, and Mr. Thomas Scott 3rd Vice-President. The meeting terminated with the singing of the National Anthem.

S. BROWN,
Secretary.

ST. CATHERINE: Morris Hall: Harker's Hall P.O.—Meeting held 14.6.39. Mr. F. S. Rhooms, 2nd Vice-President, presided. Thirty-one members were present. The Roll Call revealed a membership of 89. The Working Committee gave its report. All Authorized Persons were in attendance and gave their reports. Messrs. C. Mason and H. Welsh, delegates to the meeting of the Associated Branches, gave a report. They were thanked. The contract laid out by the Parent Society with the Marketing Division for the supply of fruits, vegetables, etc., was discussed. A committee consisting of Messrs. N. Price, J. L. Edwards, F. S. Rhooms, H. Welsh, C. Mason, M. Townshend, C. Henry and the Secretary was appointed to draft resolutions for the Half-Yearly General Meeting. As a delegate to this meeting, Mr. J. L. Edwards was unanimously elected. The meeting terminated with "the King."

T. E. LAWRENCE,
Secretary.

Springfield: Carron Hall P.O.—Meeting held 18.7.39. Present: Messrs. R. C. Bridge, Asst. Marketing Officer; B. D. Kelly; A. P. Hanson, Supervisor; Rev. J. G. Peterkin, and Instructor Coke. Mr. Bridge addressed the meeting, and gave information re the Marketing Board. Addresses were also given by Messrs. Hanson, Jones and Coke. An interesting meeting was brought to a close by the singing of the National Anthem.

B. A. FORREST,
Secretary.

Thompson Pen: Spanish Town P.O.—Meeting held 12.7.39. Present: Mr. A. A. Russell, J.P., M.P.B.; the President, Mr. E. E. Walters; Mr. McFarlane, 1st Vice-President; Mr. N. Hall, 2nd Vice-President; 20 members and 10 visitors. The need for a Demonstration Plot was pointed out. Two new members were enrolled. The meeting was terminated by the singing of the National Anthem.

GLADYS BIRD,
Secretary.

Time and Patience : Linstead P.O.—Meeting held 11.7.39. Present : The President, Mr. W. S. Bissick, who presided; the 3rd Vice-President; the Secretary, 6 members and a few visitors. The Authorized Persons reported. The President addressed the meeting, which was terminated by the singing of the National Anthem.

(Miss) A. M. BOYD,
Secretary.

ST. ELIZABETH : Malvern; Malvern P.O.—Meeting held 14.7.39. Present : Rev. S. C. Ashton, President; Mr. P. St. L. Bacquie, Supervisor; Instructor D. Phillips, Mr. H. W. Lynch, 15 members and a large number of the senior scholars of the Bethlehem Practising School. Mr. Phillips, the new Instructor for the area, was introduced by Mr. Bacquie, and warmly welcomed by the Branch. Mr. Bacquie gave a very instructive and helpful talk on the rearing of small stock, particularly goats. Ex-Instructor Lynch congratulated the Branch on the results of the recent White Yam Competition, and recommended an Irish Potato Competition. A song was rendered by the scholars of the Bethlehem School, and a Resolution with regard to Land Settlement discussed and passed. The meeting terminated with the singing of the National Anthem.

(Miss) E. I. BLAKE,
Secretary.

Nightingale Grove Vegetable and Corn Growers' Association :—Newmarket P.O.—Meeting held 20.7.39. Present : Mr. N. Cleveland Lewis, who presided; Mr. L. A. Powell, Superintendent of Grove Place; Instructor Wray; Mr. J. Scudamore, Agricultural foreman; Mr. A. A. Walker; Miss Dobson, Secretary; a large number of members of the local Branch, representatives from Springfield, Beersheba, Prospect and Middle Quarters Branches, and many visitors. Mr. Lewis welcomed those present, and read apologies for absence from Hon. J. T. Calder, Acting Custos for the parish. Lawyer Donald Sangster and Mr. Sinclair, President of the Associated Branches. The President introduced Mr. Powell, who subsequently gave a very instructive and interesting address on the cultivation of corn and vegetables. Instructor Wray spoke on the proposed Buying Centre at Newmarket. Mr. Lewis, having been elected President, explained the policy of the Association. It was decided that the question of acquiring a spray pump for the Association be referred to the Parent Society. Members placed orders for seed potatoes. A very successful meeting was adjourned.

(Miss) E. J. DOBSON,
Secretary.

Southfield : Southfield P.O.—Meeting held 14.7.39. Teacher A. N. Finlayson presided. There was a large gathering. Delegates from various sub-branches of the Southern St. Elizabeth Potato Growers' Association were present. The Secretary was asked to address the growers of Irish Potato. He was ably assisted by Mrs. D. A. Speid, a cultivator in St Andrew. The Government rules concerning the industry were fully explained, as well as the preparation and lining out of the plots. Questions from the growers were answered to their satisfaction. Growers were greatly inspired. The Secretary announced that a Potato Competition would be held during December. Mr. Phillips, the newly-appointed Instructor, was accorded a hearty welcome. The meeting was terminated.

J. J. MILLER,
Secretary.

ST. JAMES : Cambridge; Cambridge P.O.—Meeting held 15.6.39. There was a fairly good turn-out of members. Instructor Wray and the foreman were present. A petition was sent to the Land Commissioner praying for the purchase of a property for purposes of Land Settlement. The Instructor addressed the meeting. He urged members to cultivate catch crops. The meeting terminated.

J. GORDON EXCELL,
Secretary.

ST. MARY : Camberwell; Camberwell P.O.—Meeting held 16.6.39. Present : Messrs. D. A. Jones, Instructor; J. F. Walters, President; J. A. Melbourne, D. A. McLeary, 1st and 3rd Vice-Presidents; 8 members, 2 visitors and the Secretary. The Secretary's annual report and the Treasurer's financial statement were read and accepted. The newly-elected officers promised faithful service. Arrangements for a concert were made. Five Authorized Persons reported. Three delegates were appointed to the Half-Yearly meeting of the St. Mary Branches Associated. There was an interesting debate. The singing of the National Anthem terminated the meeting.

(Miss) J. R. EBANKS,
Secretary.

Epsom : Annotto Bay P.O.—Meeting held 5.7.39. Present : Instructor Jones, The Plant Disease Inspector, Mr. A. C. Gibson, President; and 10 members. A subsidy towards the purchase of a ram from the Parent Society was gratefully

acknowledged. Delegates to the Half-Yearly Meeting at Highgate gave a report. Addresses were given by the teacher, Miss Z. P. James, the President and the Plant Disease Inspector. The meeting terminated with the singing of the National Anthem.

FRED A. EDWARDS,
Secretary.

Marlborough: Richmond P.O.—Meeting held 25.7.39. There were eight members present. The delegate to the meeting of the St. Mary Branches Associated gave his report, which was adopted. One A.P. reported "all correct." His equipment was examined. The singing of the National Anthem brought the meeting to a close.

S. L. S. STERLING,
Secretary.

Mt. Joseph: Enfield P.O.—Annual meeting held 28.4.39. Mr. D. A. McNichol presided. Present: Mr. E. V. Webber, Secretary; Mr. C. I. Bruce, Assistant Secretary; Mr. C. L. Stuart, Asst. Secretary J.A.S.; Mr. Victor Bailey, Mr. C. L. A. Stuart, Member of the Board of Management, J.A.S.; and 60 members. The Secretary read a report of the Branch's work for the year. Mr. C. L. Stuart spoke on "Soil Erosion" and "Marketing of foodstuffs." Addresses were given by Messrs. Victor Bailey and C. L. A. Stuart. New members were enrolled. The singing of the National Anthem terminated the meeting.

C. I. BRUCE,
Secretary.

Richmond: Richmond P.O.—Meeting held 30.6.39. Present: Messrs. Julius McIntosh, President; Thomas Davis, 1st Vice-President; N. Thomas, Secretary, and eight other members. Mr. N. Thomas was appointed delegate to the Half-Yearly Meeting to be held in Kingston. The Treasurer and Secretary presented their reports. These were accepted. The President expressed regret at the death of Mr. Alex. Davidson, 2nd Vice-President. Election of officers: Mr. Julius McIntosh, re-elected President; Mr. Thomas Davis, 1st Vice-President; Mr. S. R. Bowen, 2nd Vice-President; Mr. Abraham Edwards, 3rd Vice-President; Mr. Thomas Davis, re-elected Treasurer; Mr. N. Thomas, re-elected Secretary. The meeting ended with the singing of the Doxology.

NEWTON THOMAS,
Secretary.

Tryall Hill: Long Road P.O.—Meeting held 19.6.39. Present: Messrs. U. Phillips, M. Livingston, President; Authorized Person Bruce, Instructor Jones, the Asst. Secretary, Mrs. E. A. Thomas, and many members. Arrangements were made for delegates to attend the meeting of the St. Mary Branches Associated. Correspondence was read. Mrs. E. A. Thomas was appointed delegate to the Half-Yearly General Meeting. One A.P. reported "all correct." The Instructor in his address forcefully touched upon Marketing, Land Settlement, restoring of soil by mulching and manuring, and co-operation. Four new members were enrolled. The singing of the National Anthem brought the meeting to a close.

N. H. HENRY,
Secretary.

Wallingford: Guy's Hill P.O.—Meeting held 2.8.39. There were present 19 members and 23 visitors. It was decided to stage a Fair in aid of the society. The usefulness of the Agricultural Society was pointed out, especially to visitors. The National Anthem brought the meeting to a close.

G. McLAREN,
Asst. Secretary.

ST. THOMAS: Hagley Gap; Hagley Gap P.O.—Meeting held 28.7.39. Mr. H. B. Gilroy, 1st Vice-President, presided. There were 9 members present. Members of the Parochial Board were requested to visit the district. There was a short discussion on Land Settlement. The need for a water supply and a Dental Clinic was stressed. The meeting terminated with the singing of the National Anthem.

ASTLEY HENDERSON,
Asst. Secretary.

Pear Tree River: Port Morant P.O.—Annual meeting held 26.6.39. Present: The President, Mrs. E. Beckford, and many others. The Secretary's annual report was adopted. The Treasurer's Report was read and adopted. Election of officers: President, Mrs. E. Beckford, re-elected; 1st Vice-President and Treasurer, Mr. J. Thompson, re-elected; 2nd Vice-President, Mr. Robert Hauldridge, re-elected; 3rd Vice-President, Mr. Albert Blackwood; Secretary, Mr. V. Ralph-McLean, re-elected. The singing of the National Anthem closed the meeting.

V. RALPH-MCLEAN,
Secretary.

Thornton: Sunning Hill P.O.—Meeting held 8.8.39. Present: The President and Vice-Presidents; 24 members and the Secretary. The meeting was opened

with prayer by the Rev. C. L. Emanuel. The President gave a report of the Half-Yearly General Meeting. Rev. Emanuel gave a lengthy and interesting address. The Authorized Persons reported. Six new members were enrolled. The meeting was terminated by the singing of the National Anthem.

N. A. PATTERSON,
Secretary.

TRELAWNY: Spring Garden—Rock Spring; Albert Town P.O.—Annual meeting held 8.6.89. Many members were present, fourteen of whom paid their fees. Election of officers: President, Mr. C. W. Innerarity; 1st Vice-President, Mr. P. L. Burnett; 2nd Vice-President, Mr. I. Llewellyn Coye; 3rd Vice-President, Mr. Aquilla Codling; Secretary, Miss C. B. Hall; Asst. Secretary, Mr. L. C. Coy, re-elected. The following matters were dealt with: (a) Post Office. (b) Parochial Road to Kelton. The Secretary was advised to write to the Honourable Member for the parish asking him to have the matter of the post office considered in Council. The President gave thanks for his election and asked members for their co-operation. A very enjoyable meeting came to a close by the singing of "the King."

L. C. COY,
Asst. Secretary.

Ulster Spring: Ulster Spring P.O.—Meeting held 10.7.89. Instructor Kelly and 9 members were present. Mr. E. A. Yates presided. The President opened the meeting with prayer. Correspondence was taken. Mr. G. M. Sylvester, delegate to the Half-Yearly meeting of the Trelawny Branches Associated, gave a lucid report. He was heartily thanked. The Instructor gave a very practical address on the Marketing Board. An Authorized Person reported "all correct." The meeting adjourned after the National Anthem had been sung.

(Miss) I. C. WILLIAMS,
Secretary.

WESTMORELAND: Caledonia; Darliston P.O.—Meeting held 27.6.89. Present: N. A. Grey, Esq., President; 6 members, the Secretary and 4 visitors. The following matters were dealt with: Land Settlement scheme; affiliation of the Branch; planting of trees for lumber; Dental Clinic; introduction of seedless varieties of citrus. The meeting was terminated by the singing of "the King."

(Miss) I. VIC. McPHERSON,
Secretary.

Cornwall Mtn.: Cornwall Mtn. P.O.—Meeting held 14.7.89. Present: Mr. D. G. McFarlane, President; 14 members, a few visitors, and the Secretary, Mr. U. C. Wolfe. Matters arising: 1. Affiliation of the Branch: The Secretary reported that this had been done. 2. Resolution re daily delivery of mails from Kingston: The Secretary was asked to forward this resolution. 3. Grindstone: It was decided to put up a notice to the effect that free use of the stone was allowed to members only. 4. Leaf Spot Disease: The Secretary was asked to obtain information re procuring help for the spraying of bananas. The Secretary advised members that they should purchase a Ram or a Boar so as to improve the small stock of the district. A drive for a larger number of members was urged. Mr. Wolfe also urged the importance of vegetable growing. It was decided to order 2 barrels of Irish potatoes, some of which would be distributed to each member. New members were enrolled. The meeting stood adjourned with the singing of the National Anthem.

U. C. WOLFE,
Secretary.

Porter's Mtn.: Mt. Peto P.O.—Meeting held 17.7.89. Present: Mr. L. M. Watson, 2nd Vice-President, who presided; 14 members and 12 visitors. A Shareholder Project was discussed. Nine members agreed to join. Mr. D. F. Bowen gave a report of the Half-Yearly Meeting of the Westmoreland Branches Associated. A.P. reported "all correct." Minor matters were dealt with. The singing of the National Anthem brought the meeting to a close.

D. F. BOWEN,
Secretary.

JUVENILE BRANCHES.

WESTMORELAND: Cairn Curran; Darliston P.O.—Meeting held 9.6.89. Present: Miss V. Cunningham, President, and 33 members. The meeting was opened with prayer by Mr. J. A. Bowen. The President gave a short address. The cultivation of peas was discussed. A debate followed. Instructor Wray addressed the meeting. The National Anthem brought the meeting to its close.

(Miss) MAUD McFARLANE,
Secretary.

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ST. MARY: Flint River; Troja P.O.—Meeting held 8.6.39. Present: Master Edwin Barber, in the chair; Master H. Buchanan, Secretary; about 50 members, and members of the senior branch. (1) Cabbage Competition: Members had competed. The prize was won by Master Vincent Bailey, who had grown cabbages weighing over 16 lb. (2) Yam competition: This would be held later in the year. (3) Reports on fowls were given by six members. There was an interesting debate. Mr. H. G. Vassal, President of the Senior Branch, gave very useful hints. The meeting terminated with the singing of the National Anthem.

(Miss) M. R. DAWKINS,
Reporting Secretary.

OTHER REPORTS RECEIVED.

Branch and Secretary.	Date of Meeting.	Attendance.	Business.
<i>Clarendon—</i> Brandon Hill (E. A. Graham)	17.7.39	Over 27	Silver Jubilee. Water supply. Half-yearly general meeting. Potato growing. Reports of Authorized Persons.
Pleasant Valley (Mrs. A. A. Flyter)	20.6.39	..	Correspondence. Reports of delegates to the Committee meeting of the C. B. A. and the Half-yearly meeting. Report of A.P.
Rock (E. Bernard)	31.5.39	16	Correspondence. Enrolment of new members. Routine matters.
<i>Hanover—</i> Kendal (D. O. Haase)	21.6.39	18	Correspondence. Treasurer's financial statement. Address by Instructor Hastings.
<i>Manchester—</i> Mispah (E. W. Roberts)	12.6.39	31	Demonstration Plot. Buck. Water supply. Signs. Sweet potato Competition. Reports of Authorized Persons. Address by Mr. T. Josephs.
Do.	10.7.39	49	Demonstration Plot. Show. Report of delegate to meeting of the M. B. A. Address by Instructor J. A. Graham.
<i>Portland—</i> Bangor Ridge (George A. Barnes)	6.7.39	Over 12	Saanen Buck. Appointment of delegate to the Half-yearly general meeting. Cane cuttings. Minor matters.
Bybrook (Miss I. M. Facey)	11.5.39	Over 17	Election of officers. Routine matters. Social.
Do.	8.6.39	Over 9	Local show. Election of delegate to the Half-yearly general meeting. Meeting of the Portland Branches Assoc. Concert.
Craigmill (Rev. T. Lawrence)	4.7.39	10	Report of delegate to meeting of the Portland Branches Assoc. Show. Road.
Maldstone-Bourbon (I. E. Somers)	14.6.39	22	Address by Instructor G. R. Graham. Yampie Competition. Exhibition. Correspondence. Minor matters.

OTHER REPORTS RECEIVED, *contd.*

Branch and Secretary.	Date of Meeting.	Attendance.	Business.
Panton-Mt. Pleasant (Hazeal B. W. Bunting)	22.7.39	34	Land Settlement. Irish potato. Enrolment of new members.
St. Andrew— Rock Hall (Mrs. B. Heslop)	10.7.39	10	Distribution of Journals. Correspondence. Routine matters.
St. Ann— Pedro A. L. Francis)	24.4.39	..	Reports of Secretary and Treasurer. Election of officers. Tank. Marketing Department.
Do.	22.5.39	..	Seed corn competition. Irish potato. Minor matters.
St. Catherine— Morris Hall (T. E. Lawrence)	10.5.39	42	Signs. Reports of Authorized Persons. Correspondence. Election of delegates to the meeting of the St. Catherine Branches Assoc.
Thompson Pen (Miss Gladys Reid)	14.6.39	..	Report of delegate to meeting of the St. Catherine Branches Assoc. Enrolment of new members. Half-yearly general meeting.
St. Elizabeth— Ginger Hill (R. L. Gordon)	24.7.39	..	Leaf Spot. Election of officers. Annual Report of Secretary.
Nightingale Grove (Edna J. Dobson)	7.7.39	Over 19	Visit to Grove Place. Correspondence. Road. Address by Instructor Wray. Buying centre. Corn. Fertilisers.
St. James— Cambridge (Cyril E. Allen)	27.7.39	..	Leaf Spot. Correspondence. Land Settlement. Address by the President. Demonstration Plot. Small stock. Enrolment of members.
Orange (E. S. Anglin)	27.7.39	Over 19	Report of A. P. Correspondence. Address by Mr. Lindo on Dairying. Water supply. Lamp. Minor matters.
Salt Spring (C. A. Thompson)	11.7.39	14	Address by the President. Correspondence. Routine matters.
St. Mary— Epsom (Fred. A. Edwards)	7.6.39	14	Election of delegates to meeting of the St. Mary Branches Assoc. Marketing of foodstuffs. Routine matters.
Flint River (Miss M. R. Dawkins)	8.6.39	Over 12	Boar. Election of delegates to the meeting of the St. Mary Branches Assoc. Bridge. Water supply. Reports of Authorized Persons.
Free Hill (N. B. Falcouer)	22.6.39	10	Road. Water supply. Marketing of foodstuffs. Correspondence.
Long Road (R. M. Hird)	15.5.39	..	Demonstration Plots. Address by the Instructor. Election of delegates to the meeting of the St. Mary Branches Assoc.

OTHER REPORTS RECEIVED, *contd.*

Branch and Secretary.	Date of Meeting.	Attendance.	Business.
Lucky Hill— Jeffrey Town (F. W. Geohag- han)	20.6.39	Over 25	Routine matters.
Wallingford (L. A. Henry)	5.7.39	33	Fair. Minor matters.
St. Thomas— Dalvey (J. A. McPher- son)	22.6.39	Over 14	Address by Instructor McLaren. De- monstration on holding. Land Settle- ment. Ground provisions. Social.
Hagley Gap (Astley Hen- derson)	23.6.39	9	Report of A. P. Road. Correspond- ence. Anniversary.
Pear Tree River (V. R. McLean)	8.3.39	68	Signboards. Water supply. Dispensary. Land Settlement Scheme. School.
Do.	3.4.39	Over 10	Report of A.P. Treasurer's financial statement. Address by Instructor McLaren. Outing.
Do.	3.7.39	..	Secretary's annual report. Leaf Spot disease. School.
Somerset (J. A. Telfer)	29.6.39	Over 5	Address by the President. Vegetable Competition. Minor matters.
Thornton (N. A. Patter- son)	11.7.39	..	Report of delegate to the meeting of the St. Thomas Branches Assoc. Ad- dresses by Rev. Emanuel and Instruc- tor McLaren. Reports of Authorized Persons.
Trelawny— Ulster Spring (Miss I. C. Williams)	8.5.39	Over 13	Election of officers. Reports of Presi- dent, Treasurer and Secretary. Address by Instructor Kelly.
Wakefield (M. E. Gilchrist)	7.7.39	37	Sign post. Marketing of foodstuffs. Address by Instructor Kelly. Dis- pensary. Land Settlement. Sweet potatoes.
Waldensia (C. C. Lee)	3.7.39	20	Land Settlement. Road. Banana Borer.
Westmoreland— Cairn Curran (Miss P. Hemmings)	9.6.39	23	Address by Instructor Wray. Reports of Authorized Persons. Inspection of equipment.
Porter's Mtn. (D. F. Bowen)	19.6.39	Over 44	Shareholder's Project. Address by In- structor Hastings. Road. Report of A. P. Debate.
Sheffield (Saml. M. Hall)	17.5.39	Over 11	Reports of Secretary and Treasurer. Election of officers.
Do.	12.7.39	Over 20	Report of delegate to meeting of the W. B. A. Water supply. Land Settle- ment. Addresses by Instructor Hastings and Mr. Weller.

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OF THE

Jamaica Agricultural Society.

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OCTOBER, 1939.

No. 10.

BOARD OF MANAGEMENT.

THE regular monthly meeting of the Board of Management of the Jamaica Agricultural Society was held at the offices of the Society, 10-12 North Parade, Kingston, on Wednesday, the 6th September, 1939, at 11.30 a.m. There were present: Mr. U. Theo. McKay, Third Vice-President, presiding; Hon. G. A. Jones, C.M.G., Director of Agriculture, (*ex-officio*), Messrs. R. A. Burke, C. O. Cover, H. G. Dunkley, T. P. V. McDaniel, D. D. Phillips, C. L. A. Stuart and W. Harper Watson, Hons. C. A. Reid and C. A. Little; Messrs. P. St. L. Bacquie and A. P. Hanson, Supervisors of Instructors and the Secretary, Arthur Thelwell.

Apologies for Absence.

Apologies for absence were submitted on behalf of Hon. M. H. Segré and Rev. W. J. Thompson.

Confirmation of Minutes of the previous Meeting.

The Minutes of the previous meeting having been circulated, they were taken as read, and on the motion of Mr. Phillips, seconded by Mr. McDaniel, they were confirmed.

Matters arising out of the Minutes.

(a) *Government Aid to Citrus Growers.* It was decided to refer this matter to the Citrus Competition Committee.

(b) *Resolution from St. Mary Branches Associated re Payment of Authorised Persons.* The following was submitted:—

"As fruitless complaints have often been made through the various Branch Societies of neglect in payment to Authorised Persons for work performed:

"BE IT RESOLVED that the Parent Body of the Jamaica Agricultural Society be asked to seek better protection for Authorised Persons with regard to payment."

The Secretary stated the services for which Authorised Persons received payment and the rates at which such payment was made.

It was also pointed out that an Authorised Person had no power to make an arrest in the case of Prædial Larceny.

Mr. Stuart suggested that an effort should be made to have the law amended so that Authorised Persons could so act, and he moved the following resolution which was seconded by Mr. Phillips and carried:

"Be it resolved that the Government be approached to amend the Law relating to Authorised Persons whereby they be given the powers of District Constables in the case of Prædial Larceny."

(c) *Resolutions from Westmoreland Branches Associated and Mt. Airy Branch re utilization of "Rush".* The following were submitted:—

(*Westmoreland Branches Associated.*) "Whereas Rush, a specie of grass is widely grown throughout the Government and private lands stretching from Negril to Hanover and occupying an area of several thousand acres and whereas this Rush can be suitably used for the making of handbags, grips, hats, baskets, mats, paper, etc., and whereas young girls of the various districts through which this Rush is grown are out of employment :

"BE IT RESOLVED that the Parent Society take an interest in the welfare of these unemployed by erecting a factory to provide employment for these young men and women in order to lessen the unemployment now existing in these various districts."

(*Mt. Airy Branch.*) "Whereas the young men and women of the districts of Mt. Airy, Negril and Sheffield are unemployed, and living without any hope of employment, and whereas hundreds of acres of Government lands and private lands in the vicinity of Negril stretching away to Hanover, and whereas on these lands are grown certain tall grass called "Rush," and whereas this can be made into suitable things, such as suitcases, handbags, hats, mats, etc. :

"BE IT RESOLVED that the Government be asked to erect and establish a factory so as to provide work for the young women especially. If Government will take prompt action, it will naturally assist the present congestion of unemployment now existing in these districts."

The Secretary stated that at the direction of the Board at their previous meeting, he had referred this matter to the Department of Agriculture, and he quoted the following memorandum addressed to the Director of Agriculture by Mr. Goodman, Superintendent of Public Gardens.

"I have seen quite a number of Fancy articles made from Rush and they looked quite good. I think the young Rush would make good dish mats. The young rush is soft and would not scratch the polished surface of the table if the mats were properly made.

"I am not sure that there would be any large sale for the hats except to visitors to the Island but I do think that such things as handbags, grips, baskets, etc., could be sold readily if the prices were attractive.

"When Major Deverille was out here he suggested making paper from the rush if he could persuade the British Government to assist in the paper industry for Jamaica."

(Sgd.) M. S. GOODMAN,
S. P. G.

The Secretary was directed to inform the Board if he saw the possibility of anything being done in the matter.

Statement of Accounts.

The Secretary stated that the Statement of Accounts was not ready but would be circulated to the members.

Replies to Questions.

The Secretary read the following:—

To The Secretary :

6th September, 1939.

The last Half-Yearly General Meeting of the Jamaica Agricultural Society appointed a Committee to enquire into the question of Ginger and to make a report to the Board of Management.

The first meeting of this Committee held on Wednesday, 16th August, 1939, decided to refer the following questions to the Board of Management:—

(i) What is the cost per unit for production of Ginger in Jamaica at present?

The Committee discussed an article in the Society's Journal for March, 1939, dealing with the cost of producing a crop of Ginger, but decided that the figures therein given were not reliable and that the question should be referred to the Board of Management, with a view to enlisting the services of the Society's Instructors in obtaining reliable statistics.

(ii) Has there been any known fertiliser that has proven itself particularly favourable for better production of Ginger in Jamaica?

The Committee decided to refer this question to the Board with a request that the Department of Science and Agriculture be asked to conduct experiments with a view to increasing the production of Ginger by the use of fertilisers.

(Sgd.) C. L. STUART,
Secretary to the Ginger Committee.

The Secretary was instructed to procure the information asked for.

Resolutions.

(a) *Mr. McKay re Protection of Tanks, etc., at Grove Place.* Mr. McKay moved the following:—

WHEREAS : Grove Place is one of the show places in the Island in so far as Agriculture is concerned : AND WHEREAS parties from different points of the Island visit this place from time to time and WHEREAS such visits serve as stimuli to our agricultural efforts and should be encouraged :

BE IT RESOLVED that the Government be requested to urge upon the Department of Science and Agriculture to take such steps in protecting tanks and any other possible source of danger in order as far as possible, to eliminate the re-occurrence of fatalities such as the drowning of two children of a visiting party reported in the press a few weeks ago.

Speaking on the resolution, Mr. McKay said due to the accident which occurred at Grove Place he felt that something should be done to protect the tank as well as any other points of danger on the Farm.

The Director of Agriculture said that as soon as he had knowledge of the accident he immediately communicated with the manager of the Grove Place Farm and later he visited the scene of the accident. It was a mystery how the children had got to the tank as it was well protected. He reported the matter to the Public Works Department to see if any further protection was desirable and everything possible was being done to see if any further protection could be effected.

Mr. Phillips seconded the resolution and pointed out that at the Bellefield district, while the tank there was protected from animals it was not protected from children.

It was suggested that the resolution should be withdrawn, but Mr. McKay said he was not prepared to do this.

Mr. Reid said in view of this he would suggest that the word "properly" be inserted before the word "protecting" in the resolution.

Mr. McKay agreed to this.

Mr. Cover suggested that as the intention of the resolution was to remedy a wrong and it had been explained by the Director of Agriculture that that had been accomplished he did not see what further could be done.

Mr. Dunkley supported this view.

The resolution was put to the vote and carried.

(a) *Mr. McKay re Planned Land Settlement.* The following was moved by Mr. McKay and seconded by Mr. Burke:—

RESOLVED : That this Board of Management, representing the Agricultural interests of the Colony, having considered carefully the question of Land Settlement, especially the "New Deal" involving the sum of £650,000, a sum to be repaid by the general taxpayers of this Colony, is of opinion that without planned Land Settlement as set out in the Message of His Excellency which planned Land Settlement should be co-extensive with the allotments of land, the Scheme cannot be the success it ought to be and further that the Board of Management pledges itself to use its influence to secure Planned Land Settlement in Jamaica.

Speaking on the resolution, Mr. McKay said the survey of the Members of the Board was wider than that of any other organization in the Island. The members were elected by the agriculturists of the entire Island. Land Settlement had been in existence in Jamaica for a long time but on a smaller scale in comparison to the present scheme called the New Deal. This involved the expenditure of some £650,000

which should be spent to the best advantage. As soon as the scheme was launched many properties in Jamaica had increased in value extraordinarily. A large number of properties was being offered for sale to Government, and one of the reasons for this he felt was that owners saw a way of getting good amounts for the properties which they could not get otherwise. He said there was one phase of the situation which he as an individual deprecated and that was, that when Government sent officers to examine properties a great deal of pressure was brought to bear to get reversions of views arrived at by the officers and passed on to Government. Continuing, he said there were different classes of men to be included in the scheme. The man who was independent to a great extent but wanted to be more independent: the man who could barely make two ends meet and the man who could not make two ends meet. The man in the first class could be put on the land and left alone. If the men in the other two classes were put upon the land it would be shown just by a little reflection that it was impossible for them to make progress without help, and their second stage would be worse than their first. Such a man would leave the land in order to earn money to help himself. Government had proposed that classes of people like that should be helped. Land Settlement could help unemployment in that if a settler had five acres of land and money to work the land he could employ five men throughout the whole year. He thought it very necessary that money should be given to the settlers. He said when it was suggested by Government that a certain amount should be put away to help indigent settlers it was not entertained. He understood that the argument was that it would be better to buy lands with the money and put the people on them. It was necessary that more money should be procured for the purchase of lands. He felt that it would be better to put some of the money that was being spent for the purchase of land in the hands of the small settlers where it would be kept in circulation rather than in the hands of a few large land owners who would not find it necessary to expend it, and so increase the wealth of the Colony. He felt it was the duty of the Board of Management as representatives of the agriculturists to state that they were with the Government in the matter of Planned Land Settlement and that they would do all they could to bring it about.

Mr. Burke said he felt that all parties realized that planned Land Settlement was necessary; not many people in Jamaica he thought understood what planned Land Settlement meant. Land Settlement under the present scheme should be along well planned lines. His opinion was that Government had the machinery to work this out. On many properties under the new deal, no work had been started, in some instances roads had not been cut and people were waiting to be settled on the land. The standard of living in Jamaica was very low but people had become so used to it that no one worried about it. Continuing, he said he wanted to emphasize that the Agricultural Society should do all in its power to assist men with land to work under proper civilized conditions. They were not so much interested in the men who could buy lands as the tenants who would have to start off with one-tenth of the purchase money. He said he thought that the resolution would be passed unanimously.

Mr. McDaniel supported the resolution and said the time had arrived for a consolidation of the position. It was necessary beside buying lands that proper plans should be made for the settling of the men on them. His idea he said was a little different from that of the

previous speakers. There were thousands of settlers on the lands at present who should have had first attention from the Land Settlement Department. For instance, the men that had half-acre and quarter-acre lots should have been provided with larger areas. There were many five-acre settlers who were handicapped because they had no means to improve their lands and could obtain no assistance or help. If Government continued to buy lands without developing them, the position as it was before the new deal began would not be improved. He said he felt that tenants who already had the idea of cultivation and had agricultural minds should be encouraged to take up and develop the new lands. With a proper system of agricultural credit the people could be assisted and they would be able to absorb the labourers who were complaining of unemployment. That should be the first principle. With regard to properties already purchased he felt that careful attention should be given to the men put in charge of these settlements and men who would be able to get the settlers to work on the advice given by them, should be the ones to be employed. More attention should be given to the development of properties. In some instances there were properties which it would be wise for Government to acquire but he thought the main requisite at the present time was development.

Hon. C. A. Little said Government had favoured planned Land Settlement. The point at issue had been whether such planned Land Settlement could be conducted within the £650,000, £400,000 of which had been voted for the acquisition of land and the balance to be utilized for development. There were, he said, more than half a million people crying out for lands. There were three classes of persons included in this number. There was the man who could develop ten acres of land with his own capital and he would employ labour, but this class of settler had not been thought of at all. Preference originally went to the five-acre man. If the matter of unemployment was to receive attention in connection with Land Settlement, land should have been given to the slightly better class who could employ labour to advantage, and such settlers would require lots of ten to fifty acres each. Many such people were crowded in little villages scattered over the Island and it was not practicable to remove them. The best policy would be to procure land near to such villages so that they could be taken by the dwellers in the adjacent villages. That would enable settlers to work on the land and return home at nights. He said that a very expensive department had been set up to administer the scheme and that was very regrettable indeed. It was hoped that more money would be forthcoming to further advance the scheme. There was the second class of settler who was unable to do much for himself without help. He deplored the system of spoon-feeding and he thought the first effort should be to help those who were willing to make an effort on their own initiative. The initiative of the people should not be killed. Those who helped themselves should be helped as much as possible. He felt very strongly on the subject of development and not only new settlers but those of long standing who now needed help should be taken care of. He said he did not like the reference in the resolution to the figures £650,000 as he should prefer that Government carry on their policy.

Hon. Mr. Reid said it was not strictly correct to say that the sums used for the Land Settlement Scheme would be paid by the taxpayers. The ultimate responsibility rested on the taxpayers, but it should be borne in mind that monies would be recoverable by amounts paid for

the lands. The original idea of Elected Members of the Legislative Council had been to improve the properties and assist the settlers and the only point of difference between the Elected Members and Government was the method of financing, yet it was stated that members of the Legislative Council were opposed to assistance being given to settlers. From his point of view he said the first need was land and worthwhile settlers would make an effort to help themselves until further help was forthcoming. Such settlers started with a quick crop, for instance, sweet potatoes. He instanced a case where one settler had cultivated green vegetables from the proceeds of the sale of which he had been able to build a house. He refused to believe that unless actual grants of money were made to people they would sit and fold their hands. He felt that the whole question had been distorted. He had been one of the foremost to propose assistance to men already on the land. He did not see how it could be expected that Government could concentrate on one or two centres of the country where properties had already been acquired to the detriment of those centres where properties had not yet been purchased. It would be a great mistake to brush aside essential points and neglect many of the people who were expectantly waiting for lands which they would with their own efforts develop and so make a better Jamaica. He felt that Government should be urged to speed up the purchasing of necessary properties in certain sections. He said that the resolution should at least be modified even to admit that the properties which it was necessary to purchase should be acquired.

Mr. Phillips said it was excusable for officials who had just come to the Colony to believe it necessary that nearly half of the amount allocated for Land Settlement should be devoted to settling people on the land, but he was surprised at the attitude of some members of the Board. He did not think the amount voted could go far if such a policy were adopted. In the parish of Manchester he did not think there was a single man who was asking for money; what he wanted was land. He felt that the Board should urge Government on the necessity of acquiring certain properties. In many instances properties had been cut up and sold and not a single request had been made for monetary assistance. What was needed he said, was land for the man who was determined to make a personal effort to help himself and not depend on Government to spoon feed him.

Mr. Stuart said he thought the resolution was very vague and he did not think it would serve any very useful purpose.

The resolution was put to the vote and on division was carried, five members voting in favour of and three members against it.

Mr. Cover moved the suspension of the standing orders and moved the following resolution which was seconded by Mr. Dunkley and unanimously carried:—

That this Board of Management pledges its loyalty to the throne and person of His Majesty the King and to the Empire in this time of war and places at the command of Government the Society's organization for the carrying out of all provisions essential to and necessary for the prosecution of the war to a successful issue.

The meeting adjourned for luncheon.

Resumption.

On the resumption there were present: Hons. G. Seymour Seymour, O.B.E., (in the Chair); G. A. Jones, C.M.G., Director of Agriculture, C. A. Reid and C. A. Little, Messrs. W. Harper Watson, C. L. Stuart, U. Theo. McKay, H. G. Dunkley and D. D. Phillips.

Communications.

(a) *Letter from Department of Agriculture re Nutrition Campaign:* The following letter was submitted:—

"I am instructed by the Director of Agriculture to inform you that he has been requested by the Secretary of the Nutrition Committee, which has been set up by Government, to endeavour to obtain from the Jamaica Agricultural Society observations on the part which the Society can play in furthering the cause of nutrition in Jamaica.

The Director would be much obliged if you would be so good as to furnish the desired observations."

(Sgd.) GEORGE GOODE,

Chief Clerk.

14th Aug. 1939.

The Secretary was directed to prepare and submit a Memorandum.

(b) *Letter from C.S.O. re services of Secretary:* The following letter was submitted:—

No. 4281/37

24th August. 1939.

Sir,

With reference to the correspondence ending with the letter from this office No. 4281/37 of the 16th May, 1938, and to the interview at this office on the 16th August, 1939, I am directed to inform you that it has been decided that the term of secondment of Mr. A. F. Thelwell as Secretary of the Jamaica Agricultural Society should be extended for one year as from the 16th September, 1939, during which time it will be possible to arrive at a decision in regard to his salary and pensionable status if and when permanently appointed to the position.

(Sgd.) F. L. BROWN,

for Colonial Secretary.

The Chairman explained that Government was awaiting the Report of the Civil Service Committee so as to get comparative figures for fixing suitable remuneration and arranging Pension rights.

The Board agreed.

(c) *Letter from Bellas Gate Branch expressing thanks for Subsidy:* This letter was read and noted.

Memorandum from Secretary re 4 H Club: This matter was deferred on account of the absence of Mr. Howe who was to lead a discussion on the proposals.

Reports from Committees.

(a) *Instructors:* The following report was presented:—

6th September, 1939.

To the Board of Management:

The Instructors Committee met this morning and beg to report as follows:—

1. That Instructors be only allowed to undertake work in School Gardens after the 1st January, 1940, when specially invited to do so.

When invited by the Supervisor of Agricultural Training for specific work, the Secretary would consider whether the Instructor could be spared for such work.

2. Memorandum prepared by the Director of Agriculture, the Marketing Officer and the Secretary with regard to the spraying of potatoes was submitted and approved.

3. *Pensions.*—As a result of an interview between the Colonial Secretary, the Island Treasurer, the Director of Agriculture and the First Vice-President, it was decided that the First Vice-President prepare a scheme to be approved by the Board of Management. The scheme should then be forwarded to Government for their sanction.

4. *Headman Edie.*—That Headman Edie, being physically unfit, his employment be terminated. The Committee also recommend that he be given half-pay for three months—the Secretary to make arrangements for filling the position of Headman for Lower St. Andrew.

(Sgd.) G. A. JONES, Chairman.

(Sgd.) ARTHUR THELWELL, Secretary.

On the motion of Mr. Harper Watson seconded by Mr. Stuart, the recommendation that Headman Edie's services be terminated on account of ill-health and that he be given £9 being, three months at half-pay was adopted.

The Board expressed appreciation of Headman Edie's services.

Assistance to drought stricken areas of St. Elizabeth: The Secretary explained that the First Vice-President had approved, pending the decision of the Board, of an expenditure of a sum of £5 for helping this area with planting material and food. This had been done.

On the motion of Mr. Stuart seconded by Mr. Watson, the Board approved of the expenditure.

Food Production.—The following letter from the Secretary of the Food Production Board was read by the Secretary:—

September 6th, 1939.

"I am directed to inform you that, subject to Government approval, the Food Production Board proposes to introduce a scheme for the encouragement of the production of essential food crops in Jamaica, and the registration of growers who are producing, or who would be prepared to produce, such crops.

2. The matter is of immediate importance both in view of the national emergency and of the fact that the planting season for many crops is already passing. The Board is of the opinion that the Jamaica Agricultural Society, through its Instructors, is the most competent organization to undertake the registration and survey of food producing areas.

3. The Board invites the co-operation of the Jamaica Agricultural Society in this matter, and I am directed to enquire whether the Board of Management of the Society would be prepared to second their Instructors over a period to undertake the registration and survey for the Food Production Board.

(Sgd.) H. H. CROUCHER,
Secretary.

The Chairman said that it was quite obvious that every effort had to be made to push Food Production in the Island and, as was pointed out in the letter, it was also obvious that the organisation most competent for undertaking this work was the Jamaica Agricultural Society. The Food Production Board was inviting the co-operation of the Society and was enquiring whether the Board of Management would be prepared to ear-mark the services of the Instructors in an endeavour to register growers and undertake a survey of food producing areas. He thought it was a very necessary service and that the Board should readily agree to the secondment of the Agricultural Instructors. It was more than probable that they would have to do extensive travelling, more than at the present time and it was suggested that Government be asked to provide the sum of £1,000 per annum to meet the cost of this extra travelling.

Mr. McKay was in agreement with the proposal, but said that Instructors while on their rounds to register growers should also instruct the growers to proceed with the planting of crops. He objected to sending the Instructors out to spend several days in making surveys and registration, without putting anything into the soil; the two things could be worked together.

Mr. Watson said that as soon as the matter was noised abroad everybody would desire to plant. The effort for the destruction of rats should also be encouraged, as food production was being severely hampered by this pest.

Mr. Little said that at this time when the extension of cultivation was being considered, the matter of tenants on rented lands would also have to be considered as they were being given notice to quit. He was recommending that Government be asked to enquire into this matter.

The Secretary said that the Rat Campaign was held up on account of our not being able to find a suitable poison; there was also the question of expense. The Parochial Boards had been asked to contribute and donations had been received from three Boards and three

others had promised to contribute. It was, however, essential that the campaign be Island-wide. It was hoped to launch the campaign in October.

Mr. Seymour said that on account of the Food Production he thought the time was opportune.

Mr. Reid asked whether the Food Production Board would be prepared to do what the Marketing Department was doing by way of assisting people to plant, by providing lands and by providing the material to be planted.

Mr. Seymour said that this Board would have nothing to do with that phase of the work.

Mr. Stuart remarked that under the circumstances he did not see that there was necessity for opposition.

Mr. Seymour moved that the Board agree that the services of the Agricultural Instructors be made available over a period to undertake the registration and survey for the Food Production Board. This was seconded by Mr. Little and agreed to unanimously.

Mr. Seymour put the proposal to ask the Food Production Board to arrange for the provision of the sum of £1,000 to meet extra expenses involved in travelling.

The Board agreed.

Mr. Dunkley who arrived at this stage expressed the opinion that Government would have been well advised to have appointed the Board of Management of the Jamaica Agricultural Society as the Food Production Board. It would have been a splendid opportunity for the Jamaica Agricultural Society to show what they could do. In cases of this kind the Society should be given an opportunity of undertaking the work.

Diseases of Plants and Animals: Insect Pests.

(a) *Panama Disease of Bananas—Monthly Report*: The Secretary stated that the monthly report was not yet to hand, but would be circulated to members as soon as it was available.

(b) *Hog Sickness*: The Secretary submitted a further report from the Senior Veterinary Officer on this subject.

This was noted.

Office.

(a) *Leave*: Application from Miss Slowley for sick leave—14th to 19th August: and 6 weeks from 21st August: was, on the motion of Mr. Seymour seconded by Mr. Reid, approved.

Shows.

Manchester Horticultural Society: The Secretary explained that this Society was being revived and that the Committee were asking the Jamaica Agricultural Society for assistance by a grant or the free use of tents and other show equipment on the occasion of future shows.

Mr. Seymour said he thought that the matter could be considered so far as granting them the use of the tents and show equipment was concerned and he was recommending this to the Board.

Mr. McKay asked if there were any debts to the Society.

The Secretary said he was on the Committee and as far as he could remember there was only a small debt of £3.

On the motion of Mr. Reid seconded by Mr. Stuart, it was agreed to grant the use of the tents and other show equipment free on the occasion of the next show to the Manchester Horticultural Society.

Resolution from Branches, etc.

The following resolutions were considered and the Secretary instructed as to the procedure he should adopt in each instance:—

- (a) *Shrewsbury re Sale of Lumber on Crown Lands.*
- (b) *Liguanea re Vegetable Plot at Majesty Pen.*
- (c) *Somerton re Government Savings Bank.*
- (d) *Nightingale Grove re Permanent Crops for District.*

New Members.

On the motion of the Chairman seconded by Mr. McKay the following were elected to membership of the Society:—

- D. A. Brown, Farm Pen, Pedro.
- J. F. Mills, Leith Hall, Port Morant.
- Dr. H. H. Blair, 42 White Church St., Spanish Town.
- S. M. Georges, "The Grange," 68 Arnold Road, Kingston.
- Guy M. R. Finlason, Balaclava.
- H. R. Sharp, 72½ Harbour Street, Kingston.
- A. T. Clarke, Worthy Park, Ewarton.
- C. F. Clarke, Worthy Park, Ewarton.
- Miss L. M. Farquharson, "Pitlochry," Stony Hill.
- Edw. Ewbank, Pleasant Hill, Golden Grove.
- Ernest R. Rouse, Lichfield, Liguanea.
- Noel I. MacCormack, P.G. River Estate, Golden Grove.
- Geo. A. Abrahams, Morgans Valley, Chapelton.
- P. J. Hendriks, Annotto Bay.
- Ivan E. Russell, c/o Lindo Bros. & Co., Ltd., P.O. Box 191, Kgn.
- W. L. Pasmore, Caswell Hill, Race Course.
- D. E. Grant, Spaldings.
- C. D. Neilson, I.S.O., Walderston.
- Dr. W. N. Hibbert, Highgate.
- A. L. McKenzie, Shettewood, Sign.
- R. A. Thomas, Chapelton.
- T. S. Robinson, Chapelton.

Other Business.

(a) *Application from New Green Branch for Grant for Show:* On the motion of Hon. C. A. Reid, seconded by Mr. Seymour, a grant of one guinea for the Show was approved.

Before the meeting adjourned, Mr. McKay expressed the pleasure of the Board to see Mr. Harper Watson recovered from a recent illness and in attendance.

Mr. Watson expressed appreciation of the sentiments.

The meeting then adjourned to Wednesday, the 4th day of October, 1939, at 11.30 a.m.

MEXICAN JELLY (CUCUMBER) serves 6.

- | | |
|-----------------------|-------------------------------------|
| 4 cucumbers | 1 cup prepared lemon jelly |
| 1 cup cold water | $\frac{1}{2}$ cup boiling water |
| Salt and pepper | $1\frac{1}{2}$ tablespoons gelatine |
| Few drops onion juice | $\frac{1}{2}$ cup cold water |

Peel and cut up cucumbers. Put in saucepan with cold water. Cook slowly until soft. Rub through a sieve, add salt and pepper, onion juice, vinegar and boiling water. Have gelatine soaked in cold water. Add to hot mixture, pour into mould. When set, turn out and serve with salad dressing.



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FOR CAMPERS, PICNIC PARTIES, SPORTSMEN AND TRAVELLERS. A TIN OF **OXO** CUBES IS CONVENIENT TO CARRY AND PROVIDES A TASTY MEAL WHEREVER HOT WATER IS AVAILABLE. A CUP OF **OXO** AFTER A SWIM OR LONG TRAMP OR CLIMB IS MOST REFRESHING AND INVIGORATING, QUICKLY REMOVING.

"That Tired Feeling"!

**OXO
CUBES
NEED
NO
SLICING**

They Dissolve Instantly.

**GET
SOME
FROM YOUR GROCER.**

GEORGE B. FACEY, LTD.—AGENTS.

FOOD PRODUCTION.

POSSIBLE SHORTAGE OF FOODSTUFF.

THERE was always the possibility of serious food shortage in Jamaica as a result of the War. This possibility has been made almost a certainty as a result of the recent storm. It has always been most important that the Island should become as self-supporting as possible with regard to food supplies and should itself produce much of the food which we at present import. The War and the storm have driven this lesson home.

At the outbreak of War, Government set up a Food Production Board which has tackled the problem by a bold policy, and it is now up to every grower, and in particular members of the Jamaica Agricultural Society, to support this policy. It is based upon the broad appeal that attempt to grow our own food is perhaps the finest contribution that the Island can make to the Empire in time of War.

FOODSTUFF ASSURED OF A MARKET.

Hitherto the growing of foodstuff has been hampered by the fact that there has never been an assured, stable market nor economic, fixed prices for foodstuffs. In this way food crops differed from a crop such as the banana, which was always sure of a market and a definite price.

It should by this be well known that the grower will be able to sell all his produce at a reasonable rate, as Government is prepared to guarantee to buy all reasonable returns of produce from approved registered areas. Prices are shown in the list below and it must be borne in mind that produce must be offered in good marketable condition.

Purchases will only be made by Government—

- (i) If the grower has registered himself and his area with the Food Production Board through his Instructor or any other approved person.
- (ii) The grower is unable to sell his food in the open market at a price equal to or greater than the minimum price laid down and shown in the list below.

It should be well understood that registration does not compel a grower to sell to the Government except he is already contracted to the Marketing Department.

A registered grower is at liberty to sell in the open market at any price, provided this price of course does not violate the prices fixed by the Food Controller.

When growers register areas of their crops they are assuring themselves of a certain price for their produce even if the market price decreased or the war ended and prices fell. If prices increased growers can still sell their produce in the market at these increased prices.

All growers should make special effort to grow increased acreages of all varieties of foodstuff especially of such crops as peas, beans, corn and peanuts. They should also plant plots of green vegetables but before getting down to work they should consult their Agricultural Instructor, get his advice on the crops, and then register themselves.

A specimen of the registration form is printed below.

LIVE STOCK.

Growers should be encouraged to become as self-supporting as possible with regard to other food supplies, and should keep small stock of all kinds—goats, pigs, poultry and rabbits. They should not

forget to collect all droppings from their livestock and make compost heaps with green materials for use as manure, because as large yields of crops as possible are wanted, and supplies of artificial fertilizers are likely to be scarce and expensive.

KEEPING UP FERTILITY OF LAND.

The scheme of planting will have to be well planned as it is the policy to carry over the Food Production Scheme as part of our Agricultural enterprise after the war. To this end rotation of crops must be arranged. It is not wise to plant the same crop on the same patch of ground for a number of seasons. For example, one pea or bean crop should follow corn or yams or sweet potatoes. An important article on "Rotation of Crops" was published in the Journal for September. This article should be carefully read and studied. Growers should help to keep up the fertility of the land by planting cover crops such as Bengal beans, Jerusalem peas, Velvet beans, Overlook beans on lands not in immediate use.

SEED AND PLANTING MATERIAL.

Care should be exercised in selecting the best seeds and planting materials for planting. Only seeds known to be free from pests and diseases and of high yielding quality should be used, while all cuttings and slips should be taken only from healthy fields and be disinfected before use.

FIELD STAFF.

In order to cope with increased activities of Food Production seventeen additional Instructors have been appointed and the size of the old Instructional districts reduced. An additional Supervisor has been appointed and Officers for construction and seed supply opened at Montego Bay and Mandeville. All farmers should take full advantage of this improved service.

This scheme does not apply only to members of the Jamaica Agricultural Society but to every possible grower of foodstuff throughout the whole Island. If anyone is in doubt with regard to these instructions he should consult the Agricultural Instructor for his area.

BASIS OF GUARANTEED MINIMUM PRICES FOR PURCHASE OF FOODSTUFFS.

The Prices fixed for deliveries in Kingston are:—

Items.	Rate	Minimum prices to growers.
Cocoas	112 lb. ..	8/-
Corn	Bush. 64 lb. ..	4/- (Railway Station)
Peas, congo	" "	10/6
Peas, blackeye	" "	10/-
Peas, red	" "	13/-
Peas, cow	" "	10/-
Potatoes, sweet	112 lb. ..	6/6
Pumpkins	" ..	4/-
Yams, Negro	" ..	8/6
Yams, Yellow, Lucea	" ..	8/6
Yams, White	" ..	10/-
Yams. (other varieties)	" ..	6/-
Yampies	" ..	10/-
Groundnuts	Bush. 20 lb. ..	5/-
Rice—to be declared later.		

REGISTRATION FORM.

NAME.....
(Block letters: Surname first.)

No.....

ADDRESS..... PARISH.....

FOOD PRODUCTION BOARD.

REGISTRATION FORM.

Crop.	Area to be planted		Estimated Production per Acre.	Estimated Month of Cropping.	Area now in Production.
	Acres.	Squares			
Corn			Bushels		
Blackeye Peas			"		
Congo Peas			"		
Cow Peas			"		
Red Peas			"		
Peas & Beans (other varieties)			"		
Ground Nuts			"		
Rice			"		
Negro Yam			Cwt.		
Sweet Potatoes			Cwt.		
Irish Potatoes			100 lb.		
Pumpkins			Cwt.		
Yams (Yellow)			"		
Yams (White)			"		
Yams (other varieties)			"		
Yampies			"		
Cassava			"		
Cocoas			"		
Baddoes			"		

Signature of Grower.....

Date..... Signature of Instructor.....

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Advertisements or showrooms can't show what a truck can do. We want you to take a Ford unit out to your own proving ground make it carry your actual loads over the same routes as it would have to travel later.

This is the sensible way to test and judge a truck and this is the way we want to satisfy you . Arrange to-day for an "on-the-job" test. There is no charge or obligation.

Have you seen the new Ford "1-Ton" Trucks ?

Kingston Industrial Garage

EMERGENCY MEASURES.

Storm Damage.

THE STORM created damage agriculturally in two ways: it seriously damaged and destroyed products which we sell abroad such as, Bananas, Coffee, and Coconuts, to bring money into the Island; it damaged products which we use as food, such as Plantains, Yams, Coccoes, Breadfruit, Pears, and Peas, and of course, Bananas.

We are thus badly off in two ways—we will have little or nothing to sell abroad so as to get money and at the same time we will have less of the food which we grow ourselves and less money to buy the food which comes from abroad.

We must therefore hasten to secure as quickly as possible two things—crops to sell abroad and food crops to eat. The quickest crop that will bring most money is bananas. The quickest crops that will give most food are potatoes, peas and beans and quick-growing vegetables such as turnips, carrots and beets.

All districts which have suffered most loss of their crops, grow bananas, and besides selling the crop people have depended upon it to a large extent for food for themselves and their stock. There is, therefore, no more useful crop than the banana, and it is urgent that every effort be made to restore fields as quickly as possible.

Fruited banana trees have been either broken or blown down from the root. In cases where the bananas are so snapped that the tops rest on the ground and there are bunches only half fit, they should be left in the field, carefully shaded from the sun and be allowed to fill out. In a few weeks they will be useful as food. This will do no harm to the young suckers unless these suckers are too heavily shaded. Broken bananas that have not fruited should be cut off cleanly about three feet from the ground, the stems chopped up finely and spread out throughout the field. This is important so as to prevent serious attack from borers later on. The cut stumps should be chopped across lower down in the well known way, so as to prevent them shooting from the heart. If, however, they happen to shoot, these shoots must be continuously cut back so as to give the followers a chance.

As ample space will be left between the bananas for the next two or three months, which will cost money to weed and clean, all kinds of peas and beans should be planted in the middle of the rows. The crops should not be planted close to the bananas; three or four rows down the middle of the field will be all the field can carry. In all cases where fields have been so badly damaged that young bananas and suckers are twisted and battered, the opportunity may be used for replanting the field completely. A large number of fields require replanting, but growers have been chary of doing this as it is felt that replanting is a strong factor in the spread of Panama Disease. This risk will now have to be taken.

Yams. The planting season for yams is nearly here. Yam vines that have been blown down should be rescued at once by raising the poles and setting them into the ground. Yams not fit for eating should be treated as "junk" yams in order to save the "breed." The general planting season for yams starts in January and all available heads should be saved and turned to account. Yams ripe enough to be eaten should be reaped at once, and peas planted in the yam hills. If the hills are broken down, they must be made up again.

Corn. We shall probably lose from 25 to 30% of the Corn crop. There is very little that can be done with corn save and except that if land is already prepared and ready, it is a good risk, although it is getting rather late to plant a new crop especially in the higher corn districts. A sharp watch must be kept for attack of worms and caterpillars.

Citrus. Citrus trees have stood up well and although some of the crop will be lost, it will not be a serious loss. Once more it is shown what an excellent crop citrus is for Jamaica. Limbs that have been broken and torn should be carefully and cleanly cut and the cut surfaces protected with a waterproof covering of tar and grease or a suitable paint.

Cocoas. Not very much damage has been done to Cocoas, but the fields will want a little attention. They should be thoroughly cleaned up and all leaves which have been broken and turned yellow should be cut clean away and not allowed to rot on the plants.

Peas. Practically the whole of the pea crop, recently planted, has been swamped out. It is most important that catch crops of Red peas, Black Eye Peas, Cow Peas and other forms of peas and beans be planted immediately.

Green Peas and String Beans will be ready in a very short time and in three or four months what is left will be ready as dry peas. Young peas make a nice dish. They are rich in food value and good to eat. Red, Cow peas and other varieties of peas grow at nearly all the lower altitudes, if given proper cultivation, although Cow peas are specially suited to the lower altitudes. Broad beans and Sugar beans planted now will produce crops in another three months.

Sweet Cassava. Sticks of Sweet Cassava should be obtained and planted wherever possible. Cassava is easily grown and gives good returns.

Where the plants have been wrung it is best to reap the crop and use the sticks for new plantings.

Pumpkin. Pumpkin gives large returns and should be planted immediately in all vacant spots and through some crops such as Corn, so as to help in the emergency.

Vegetables. The blown and broken down bananas will provide us with some food for the next month or so, but after that there is bound to be a serious shortage in root crops, and quick growing vegetables should be planted immediately. The rapidity with which vegetables can be brought to maturity cannot be over-estimated. The land should be thoroughly prepared and patches of turnips, carrots, beets and okras sown. Soon after this has been done, those other vegetables which have to be transplanted can be sown in boxes while plots are prepared for setting them out. These vegetables include cabbages, tomatoes, lettuce, onions. We have never produced anything like the quantity of peanuts which we should grow and this is a splendid opportunity to set about cultivating a good acreage of peanuts.

Seeds of peanuts and seeds of all peas, beans and vegetables are available for planting.

Sweet Potatoes. Sweet Potatoes give a larger return in a shorter time than almost any other crop and are so quickly and easily grown that this is the first crop that should be planted. On no account, of course should potatoes be grown among bananas, but on a special piece of land with light soil for preference. The slips to be planted should be of the same variety in each patch, as different kinds take different

periods to become fit and it is a heavy loss to lift potatoes before they are quite ripe.

Good hills after the style of yam hills but smaller, should be dug, spaced about 6 feet apart, and the slips planted into the hill, taking care to firm the soil round the slips. The deeper the hoe or fork goes into the hill and the bigger and better the hill, the larger will be the return.

Care should be taken to see that only healthy slips are planted. The Sweet Potato, especially the red variety, is palatable food and most nutritious.

Potatoes planted in Winter months grow less profusely except in the dry areas. Spring plantings tend to produce slips and foliage at the expense of bearing. This is therefore a very good time to plant potatoes.

Fruit trees. Fruit trees such as Breadfruit, Bananas and Mango trees should receive some attention. Broken and wrung limbs should be cleanly cut away and the surfaces tarred to prevent water-soak and rot.

Insect Pests. A sharp look-out must now be kept for the ravages of caterpillars. Corn, potatoes, vegetables and crops of this nature are likely to meet with severe attack, and unless treatment is immediately undertaken, the whole crop might be lost. Dusting with some form of poison is the most effective method and the services of an Agricultural Instructor should be immediately sought at first sign of the appearance of caterpillars and worms.

Live Stock. We must all bear in mind the importance of rearing some Live Stock, especially Small Stock at this time. Rabbits can be easily kept and provide good food at practically no cost. Everyone should build a rabbit hutch and start rabbit rearing, while other small stock such as goats, and poultry especially should receive close attention.

General. It is most important that crops of peas and peanuts should be included in the general scheme of planting to enable a worker to obtain enough nutritious material to keep up the wear and tear of his body so that he can work without losing condition. It would be necessary for a worker to eat per day 9 pounds of Sweet Potatoes and as much as 25 pounds of Sweet Cassava if he ate only these articles. On the other hand fourteen ounces of peas contain enough flesh producing material to sustain a worker. An economical ration of bread-kind for a working man per day is about five pounds of Sweet Potato and six ounces of Peas with some meat or fish-kind thrown in. To produce this proportion on each acre, about half should be in potatoes and the other half in some sort of peas, beans or peanuts. An acre of this mixed cultivation will yield 928 days' rations per acre. In other words, within five or six months an acre of land can grow enough food to keep five men doing moderate work for rather more than six months. An acre of corn only yields 600 rations of equal value.

Sweet Cassava and Cassava products are lacking in flesh forming material, but are excellent food, provided they are mixed with other nutritious foods such as peas and beans, peanuts, fish and some milk. Cassava alone is not recommended as an every day food: it should be mixed as shown above.

The Storm has dealt a severe blow to the prospect of our food supply for the next four or five months, and it is the duty of everyone to set about clearing fields and planting some of the crops listed so as to help the Island to tide over the difficulty.

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FOOD PRODUCTION.**PAMPHLET No. 4.****THE RED PEA, STRING OR KIDNEY BEAN (*Phaseolus vulgaris*).**

OTHER names by which this species of bean are known are:— Dwarf, Haricot, French, and Sugar Bean. The various names taken together give a fair description of the plant; Dwarf, because it is a small relative of the climbing runner bean, and one of the smallest bean plants widely cultivated; Red, because the seeds are commonly red or red-brown, though sometimes mottled; Kidney, because most of the seeds are of this shape; and String, because selected types like the Wonder Bean are grown specially for their pods which are cut in slices and cooked in a green state.

In Jamaica the "red pea" needs no description as it is undoubtedly the most popular pulse in the Island, and many growers have had experience of string bean types grown both for local market and export. It is surprising to find, however, that large quantities of red peas are imported into the Island annually from Chile and other countries. One reason for this is that growers have allowed their strains of seed to become mixed. Local market samples may show small and large seeds and red, brown and mottled types all mixed together, whereas imported seeds are generally very uniform and appear much more attractive. Another reason is the poor yields often obtained here through faulty cultural practices.

The object of this pamphlet is to assist growers to produce better average yields of red peas, and so make it possible for the Island to dispense with imports.

DISTRICTS SUITABLE. Red Peas prefer a relatively cool climate, and hence rarely grow so well on the plains as in the hilly districts. All parishes, however, possess areas between 1,000 and 3,000 feet in altitude which are suitable and in the cases of Portland, St. Mary, St. Ann, Hanover and Westmoreland it would be possible to utilise areas well below 1,000 feet during the winter months.

SOIL AND CLIMATE. Red peas do best on light, rich soils, and heavy soils should generally be avoided. Most "red dirt" are very satisfactory in texture, but will only give first class results if they have been previously cultivated and contain plenty of organic matter. The plants are shallow rooted and require regular showers of rain throughout the growing season. Light mulches may be used to supplement insufficient rainfall in some areas.

PLACE IN ROTATIONS. Red Peas should never be mixed with other crops, nor should they follow another pea or bean crop, because nearly all plants of the pea family suffer from the same diseases and pests. Red Peas may, with advantage be planted after root crops such as Sweet or Irish Potatoes, or after vegetable crops such as, cabbage, egg-plants or sweet peppers. If corn has only been grown once in the preceding year, the peas may be sown after this crop, but it must be remembered that corn is a greedy crop which exhausts the land rapidly.

PAMPHLET No. 5.

THE GROUNDNUT OR PEANUT (*Arachia hypogaea*)

THE GROUNDNUT, peanut or monkey nut is the most important of the annual oil seed plants. More than half the world's supply is grown in India, while in the British West African Colonies of Gambia and Northern Nigeria, it is the most widely grown of all crops. By contrast, production in Jamaica of this valuable crop is at present negligible.

The uses to which groundnuts are put are numerous. Their main use is for the production of edible oil, but they are also commonly employed in the confectionary trade as peanut butter or in roasted form. The feeding value of groundnuts is very high, and it is probably true to say that the health of the people of Jamaica would be materially improved if everyone ate a handful of the nuts, raw or roasted, every day. Groundnut cake, too, is one of the most concentrated cattle foods, being particularly high in protein.

Groundnuts belong to the same family of plants as the peas and beans, and in fact, resemble some of these crops very closely as to foliage, flower and pod characteristics. The peculiar way in which the pods mature underground is, however, distinct, and should be understood by everyone wishing to grow the crop. The process occurs as follows:—

After the flower is fertilized, the petals drop, and the stalk elongates rapidly. When the stalk is about 3 ins. long, the ovary at the tip starts to develop into the pod, or, as it is often called, the 'peg.' At this stage, the stalk bends right over until the developing peg is pushed into the soil, where it matures. Pods that fail to bury themselves completely generally wither away.

From an agricultural point of view, groundnuts are an excellent crop to include in rotations. Like other pea crops they form their own nitrogen in root nodules and add some organic matter to the soil, while the very thorough cultivation they require and the digging needed to lift the crop leaves the land well stirred and relatively free of weeds.

Two main types of groundnut are commonly grown:—

(1) A spreading or runner type, which is hardy and high yielding, but sometimes slow to mature (4-6 months), and rather troublesome to cultivate and to harvest.

(2) An 'upright' or bush type, which is apt to be less hardy and lower yielding, but is somewhat quicker growing (3½-5 months), and easier to cultivate and to harvest. In both types, there are a number of varieties bearing 1 up to 4 seeds per pod and also differing considerably as to size of seeds. The runner type is the one most commonly found in Jamaica, but if good seed of the bush type can be obtained, preference should be given to it, as its quicker cropping and the lower cost of growing and harvesting it more than compensates for the slightly lower yields.

The following notes on the cultivation of groundnuts apply both to the spreading and bush types, as the only difference in treatment needed is in the spacing of the plants.

DISTRICT AND CLIMATE SUITABLE. Groundnuts like hot, relatively dry conditions and should not be cultivated in the wetter parishes or in mountainous districts. Suitable areas exist, however, in the lower parts of St. Thomas, St. Catherine, Clarendon, Manchester, St. Elizabeth, Trelawny and St. James.

SOIL. Although groundnuts will often crop well on fairly heavy soils provided the drainage is good, harvesting on such soils is difficult, and preference should always be given to light and even sandy soils.

MANURING. On soils deficient in lime, a dressing of 10-15 cwt. of slaked lime should give good results if applied before the seed is sown. The soil should also contain plenty of organic matter, but it is generally better to apply pen or other organic manure to the crop that preceded the groundnuts rather than to the groundnuts themselves. So-called N.P.K. fertilizers should also be applied to the preceding crop, but on certain soils additional applications of phosphates and potash may be made with very beneficial results just before the seed is sown.

PLACE IN ROTATIONS AND INTER-CROPPING. Groundnuts should not be grown mixed with other crops, although as the plants develop slowly at first it is often a sound practice to sow the seed through a ripening crop of corn. In addition to corn, groundnuts may follow, or be followed by, rootcrops such as yams and sweet potatoes or vegetable crops like tomatoes and cabbage. They should never follow, or be followed by, other leguminous (pea and bean) crops.

PREPARATION OF LAND. Ploughing or forking to at least 9 inches is necessary to permit deep root development and to help the plants withstand drought. It is also essential that all clods should then be broken down to give a fine even tilth. The value of this is seen later when the pegs start to form and turn down into the soil. If the soil is hard and lumpy, many of the pods will not be able to bury themselves and will shrivel up and die.

CHOICE OF SEED. Both spreading and bush types vary considerably as to number of seeds per pod, size of seeds and skin colour of the seeds. Where any choice exists, preference should be given to varieties of the bush type, which produce pods containing 3 to 4 seeds of good size, and pale rather than red skinned nuts. More important than this, however, is the freshness of the seed. Groundnut seeds are normally bought while still in the shells (i.e., undecorticated), and these shells should be clean and bright in appearance and not cracked or broken. Seed that has already been shelled should never be accepted unless you are certain that the shelling has only just been done and are prepared to sow the seeds immediately. Once out of the shells (i.e., decorticated), groundnut seeds may rapidly go rancid, especially if the shelling has been done by machine rather than by hand.

TIME TO Sow. Although groundnuts are drought resistant plants some rain is necessary at the time of sowing and during early growth, and the soil should also be fairly moist at the time of 'pegging'. Dry weather is desirable at harvest time. This means that slow growing spreading types should be sown at the outset of the autumn and spring rainy seasons, i.e., August-September or March-April, whereas the quick growing bush type can be sown one or two months later, in October-November or May. On irrigated areas sowing can be done at any season so long as the crop is timed to mature during dry weather.

SEED RATES. These vary considerably according to the size of the seeds, but as a general rule, the bush types need twice as much seed

per acre as the spreading types. Until growers have obtained personal experience of seed requirements the following list may be used as a rough guide:—

	Unshelled Pods per acre		Shelled Seeds per acre	
Spreading types with small seeds	24	qts. (25 lb.)	11	qts. (18 lb.)
„ „ „ medium seeds	28	„ (27 lb.)	13	„ (20 lb.)
„ „ „ large seeds	32	„ (29 lb.)	15	„ (22 lb.)
Bush type with small seeds	48	„ (50 lb.)	22	„ (36 lb.)
„ „ „ medium seeds	56	„ (54 lb.)	28	„ (40 lb.)
„ „ „ large seeds	64	„ (58 lb.)	30	„ (44 lb.)

SOWING AND SPACING. As stated above seed should be bought while still in the pods. It should not, however, be sown in the pods, as this is a slovenly, wasteful practice, necessitating more water for germination and producing uneven growth and reduced yields. The best method is to shell the seeds very carefully by hand a day or two before they are to be planted, and then plant single seeds 2-2½ inches deep in rows at the following spacings:—

Spreading types: 3 ft. x 18 inches.

Bush types: 2 ft. 3 ins. x 12 ins.

AFTER CULTIVATION. Regular hoeing to destroy all weeds and to keep the surface soil in a loose, fine condition is essential. When the plants have just completed full blossom and the pods are turning downwards, they should be lightly earthed up to assist 'pegging.' On small plots a good practice is to shake a spadeful of soil on top of each plant to help cover the pods produced in the middle.

CONTROL OF CATERPILLARS. If caterpillars are found to be eating the leaves, immediate steps should be taken to prevent the pest from spreading, by dusting the leaves with lead arsenic dust. Advice on methods of application may be obtained either from the Agricultural Instructor for the district or from the Government Entomologist.

MATURING. Plants of the upright bush type of groundnut usually begin to turn yellow 3½-5 months after sowing, and of the spreading types 4-6 months after sowing. At this stage the pods are still attached to the plants, but soon afterwards, especially if it rains, a large proportion of the nuts become detached and may be lost in the soil. It is therefore very important to lift the crop as soon as yellowing of the plants become general.

In some cases, however, yellowing does not occur evenly over the field, and it is then advisable to pull up a few of the green plants to see if the nuts are mature. To determine this, some of the nuts should be broken open. If the inside of the shell shows darkened veins, the nuts are sufficiently developed to be harvested. On the other hand, if the linings of the shells are soft and white the nuts are immature. A further check can be provided by leaving some of the pulled plants to wilt in the sun. If after this happens, the seeds are soft and shrivelled, the plants are not properly matured, but if firm and full, it is safe to proceed with harvesting.

LIFTING. Although machines exist for lifting groundnuts, the usual method is to dig the plants up with a fork. This operation should be

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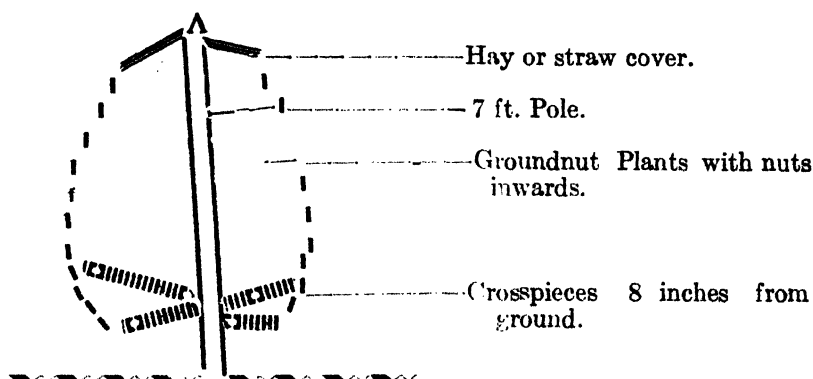
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done when the dew has dried off the plants and when the soil is sufficiently dry to be shaken readily off the nuts.

CURING OR DRYING. The usual method employed in Jamaica is to turn the plants upside down on the soil so that the nuts are exposed to the sun. This method has the disadvantages that in sunny weather rapid drying results in shrivelling of a lot of the seeds, while in rainy weather the shells are apt to become weather stained. Shrivelling also occurs if the nuts are taken off the plants immediately and dried separately, and, in addition, the nuts are not so easily removed when the plants are fresh.

The following common method of curing is suggested for trial. Erect in the field a number of strong bamboo poles, standing about 7 feet above the ground. Two cross pieces about 2 feet long should be fixed at about 8 inches from the ground, thus:—



When the plants have been lifted, they should be spread out in the sun for a *short* time so that any soil adhering to the nuts may dry and be shaken off. They should then be laid across the crosspieces and built up in successive layers with the nuts inwards to the poles and the haulms or tops outwards. The crosspieces prevent any of the nuts from touching the ground. The finished pile should be something the shape of the dotted line in the diagram above, and should be topped with a layer of hay or straw to prevent rain from soaking in.

The curing process will take 3 or 4 weeks when the pods will be dry and the seeds firm. If the piles are made too small and the weather is hot and dry, curing may be completed somewhat sooner, but this is not desirable as the pods are likely to shrivel and become discoloured.

Of course, in cases where the crop is left in the soil until all the tops have died down, the nuts scattered about in the soil need only be collected and dried. This is however a wasteful method which cannot be recommended. Not only will harvesting costs be increased, but however carefully it is done, a proportion of the crop will be lost in the soil, and if rain occurs, a lot of the seeds may start to grow.

PICKING THE NUTS. When curing is complete, the nuts have to be picked off, sorted to remove immature or damaged ones, and spread out in the sun to dry. Machines exist for removing the nuts, but the usual method is to do the job by hand.

YIELDS. Yields vary considerably, but 2,000 lb. of nuts in shell should commonly be obtained per acre and 4,000 lb. is possible. 2,000 lb. represents approximately 66 bushels of unshelled nuts, which will in turn shell out to give about 80 bushels of seed, each weighing about 50 lb.

STORAGE. It is absolutely essential that after curing, the nuts should never be dampened, as they will become discoloured. If, therefore, it is desired to store them for some time, a well-ventilated dry room is necessary. The nuts themselves can be kept in bags or bins.

USE OF HAULMS AS HAY OR FODDER. The fresh green haulms or tops make excellent fodder for livestock. The hay obtained after curing which should exceed 10 cwt. per acre, is likewise a valuable food for cattle, goats or pigs.

WANTED—NEW MEMBERS.

By JOHN F. CARTER.

MONEY talks; self-interest is a potent motive. Therefore, if we wish for a rapid increase in membership amongst our small cultivators, it is to this side of human nature we must make our appeal.

In the special circumstances this statement is not as cynical as it sounds.

The very nature of our Society makes its influence Island wide and does not confine its services to members alone. Thus it is necessary for every Branch President to introduce a scheme by which members derive a concrete benefit. This can be done in several ways, and thanks to the large numbers of visitors now attending Branch meetings, an excellent opportunity presents itself for extending our membership beyond anything which has been attained in the past.

Nearly every Branch numbers amongst its members a few enthusiasts who are far-sighted and it is through these a beginning should be made.

With the vastly increased corn production, shelling by hand will be impossible in many districts. If a Branch can find a few members willing to advance the necessary money for the purchase of a corn-sheller, the Branch is immediately in a position to offer an advantageous service to its members and the community at large. A reasonable charge should be made for the loan of the machine and a slightly higher charge to non-members. This at the outset would be an inducement to membership. As soon as sufficient funds had been accumulated, the original debt, plus, say five per cent. interest, could be paid back to those who were public-spirited enough to make the advance in the first place. Once the debt had been cleared, the money earned by the machine should be placed in a special account for the acquiring of other machinery that can be used by the community. In coffee districts, a pulper could be bought and so on, depending upon the requirements of the Branch.

In discussing the renting of land to tenants, it has been found that many do not care to do so because in the past certain tenants have caused wanton damage to the property and have not fulfilled their obligations. This difficulty can be overcome if the selecting of the tenants is handled by the local Branch of the Society. From amongst

their members, the officers of the Branch are in a position to pick tenants who are thoroughly reliable and in this way good men can be found by a land-owner who otherwise would not know which cultivators would stick to a bargain.

Naturally, the Branch could accept no direct responsibility, but the influence of the community would be felt by the individual, and there would be less likelihood of vandalism or poor agricultural methods being employed.

This scheme also gives a direct benefit to members and so once again a concrete advantage can be offered.

These are but two examples of how Branches can extend their influence and enlarge their membership and at the same time foster the spirit of co-operation which is the essence of civilization.

LIVESTOCK IN JAMAICA.

A Review of the Situation by J. W. HOWE, Live Stock Officer.

THE Livestock Industry in Jamaica while an important branch of agriculture, is not yet sufficiently developed to supply the demand for livestock products of the Colony. Despite the fact that a large number of all classes of livestock are raised in the Island, the imports of livestock products for 1938 amounted to £312,000. The majority of the livestock products imported could be produced in Jamaica, providing that the proper expansion and organization of the livestock industry is undertaken.

Present conditions make the time opportune to undertake permanent improvement in the industry, and so extend it that it will be possible to supply our needs for livestock products. Such work would not only improve the industry, but would also result in a more stable system of agriculture than that which now exists. The establishment of a sound system of mixed farming would aid in maintaining a more even purchasing power for the farmer, and would assist in improving soil fertility and checking soil erosion, a problem which is becoming more serious every year.

As far as numbers of all classes of livestock are concerned, the livestock industry is well established. The general run of livestock, is however, inferior in type and breeding, and improvement along this line will have to be undertaken if the industry is to progress. The system of marketing livestock products is inefficient and will have to be improved, if a better quality of product is to be produced.

IMPORTS OF LIVESTOCK PRODUCTS.

The following table shows the imports of livestock products for 1938:—

ARTICLE.	AMOUNT.	VALUE.
<i>Meat.</i>		
Beef, canned	480,048 lbs.	£15,216
do, wet salted	1,250,054 „	24,366
Pork, wet salted	814,618 „	17,725
Hams	420,398 „	22,068
Other kinds	395,181 „	15,505
<i>Eggs.</i>	28,526 doz.	£1,196
<i>Dairy Products</i>		
Condensed Milk	9,899,759 lbs.	143,891
Butter	956,579 „	51,322
Cheese	568,068 „	20,961

The figures show that the main imports of livestock products consist of meats, eggs, and dairy products. As beef cattle, dairy cattle, pigs and poultry can all be raised here successfully there appears no reason why it should not, in time be possible to produce sufficient of these products locally to supply our needs.

In order to accomplish this, expansion of the industry will have to be undertaken, and improvement both in numbers and quality will have to be made if we are to offset the imports of livestock products.

INCREASE NECESSARY TO SUPPLY LOCAL DEMAND FOR LIVESTOCK PRODUCTS.

Using the import figures for 1938 as a basis, it is estimated that the following increase will be necessary in the various classes of livestock in order to produce sufficient livestock products to supply the local demands:—

Dairy Cattle— 12,500 head averaging 4,000 lbs. milk per lactation.

Pigs — 8,000 head averaging 100 lbs. per dressed carcass.

Poultry — 3,500 head averaging 100 eggs per year.

Beef Cattle — 5,500 head averaging 400 lbs. per dressed carcass.

The above figures mean an increase of approximately 15% in the number of beef cattle, 16% in pigs, and 60% in dairy cattle. Such expansion of the livestock industry can be made by increasing the number of animals and improving the quality and type.

ADVANTAGES OF MIXED FARMING.

The most stable system of agriculture is one based on mixed farming, or the proper combination of crops and livestock. The advantages of mixed farming are listed below.

1. Livestock farming makes it possible to maintain soil fertility and aids in the prevention of soil erosion. In Jamaica the fertility of much of the land is gradually being depleted and erosion is taking place. This can be overcome to a large extent by the proper application of farmyard manure. Soil erosion can be checked by planting land to pasture.

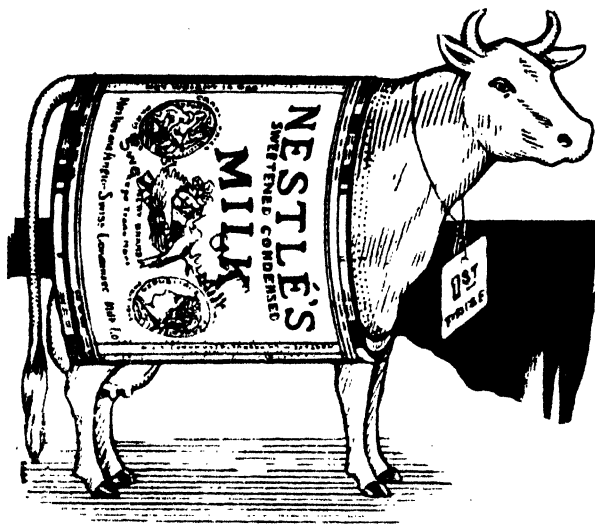
2. Livestock farming makes it possible to employ labour all the year, instead of during a short season when the crops are harvested. This results in less unemployment and a better type of labour being available.

3. Livestock farming makes it possible to utilize products which would otherwise be wasted. In this way such crops as rejected fruits, grains, vegetables, and other materials, for which there is no market, can be converted into a marketable product by livestock.

4. Livestock farming makes it possible to utilize land which is unfit for cultivation. This is an important factor in Jamaica, as the topography of the land is often such that much of it cannot be economically used for cultivation. Such land can be used for pasture.

5. Livestock farming brings in money throughout the year, with the result that the purchasing power of the farmer is evened out. By raising livestock, the farmer has some money coming in every month of the year, instead of having to wait for his money until the crop season as is necessary where crops are grown exclusively and no livestock raised.

Livestock farming makes it possible for the farmer to grow much of the food he needs, with the result that he is independent of purchasing from outside sources.



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REVIEW OF THE CLASSES OF LIVESTOCK RAISED IN JAMAICA.

Although all classes of Livestock are raised in Jamaica, improvement in quality and increase in numbers of all classes is necessary. The main classes of livestock which are of importance in Jamaica are dairy cattle, beef cattle, poultry, pigs, goats, sheep and rabbits.

DAIRY CATTLE.

Dairy cattle are raised in fairly large numbers and while the breeding in most cases is badly mixed, there are sufficient animals in the Island on which to build a sound dairy industry.

The production of the average dairy cow in Jamaica is not high, but can be greatly improved by proper breeding and feeding. While it is not possible in the tropics to develop a dairy cow with as high a production as that reached in the northern countries, it is possible to produce dairy cows which will average well over 4,000 pounds of milk per lactation without resorting to expensive, highly bred stock.

The main breeds of dairy cattle in Jamaica are the Montgomery-Jersey, Montgomery-Guernsey and Montgomery-Holstein. Crossing the northern breeds with the Montgomery, produces a type of animal which will produce economically, and which is hardy and able to withstand tropical conditions.

Improved breeding, feeding and management will do much to improve the dairy cattle and the quality and quantity of the milk produced.

BEEF CATTLE.

The beef industry is one which is undertaken mainly by the large penkeepers, and is not a branch of the livestock industry which can be undertaken by a farmer with less than 50 acres of land. While the beef industry is probably the largest branch of livestock in Jamaica, the cattle raised are for the most part of a type which requires too long to reach maturity. A good quality of beef can be produced here, but can be considerably improved by raising a type of animal which will develop earlier and make more economical gains for the feed consumed.

The question of feeding and fattening of beef cattle is one which requires some study. It will be necessary to improve our pastures, and locally grown feeds, and possibly to introduce new varieties of high protein feed crops.

Slaughtering of beef cattle in Jamaica is not such as is conducive to the production of a good quality of beef. Even a prime fat steer if improperly slaughtered, will not produce a high quality of beef, and improved slaughter methods will do much to improve the quality of beef produced.

Like other branches of the livestock industry, the marketing of beef cattle also calls for improvement. At the present time there is little, if any, incentive for the penkeeper to improve his herd, since there are no grades of beef cattle and little differentiation in price is made between cattle of good quality, and those of poor quality. If some method can be devised whereby beef cattle are purchased on

grades, it would then encourage the penkeeper to improve his beef herd, as a premium would be paid for good stock over that of an inferior grade.

Many of the butchered animals do not carry the necessary finish for good beef. By breeding a type of beef animal which can be fattened and marketed at two and a half to three years of age, a better quality of beef is produced, and the penkeeper is able to sell his animals while they are capable of making the most economical gains for the feed consumed. After a beef animal has reached the age of three years, it requires much more feed to make a pound of gain.

Although many of the beef herds in the Island are mainly Zebu, there are a number of herds where Aberdeen Angus, Devon and Hereford are used. Crossing the Zebu with the northern breeds will do much to improve the type of beef animal raised, without decreasing the hardiness and resistance to tropical conditions, and will produce a beef animal which matures at an earlier age.

While the beef industry is built on a sound foundation, it can be greatly improved by using better methods of breeding, feeding, slaughtering and marketing.

POULTRY.

Poultry is raised in large numbers in Jamaica and comprise an important class in the livestock industry. For the most part poultry is raised in small flocks and the birds are of mixed breeding, poor in type and low in production. Poultry can be raised by the small farmer with little difficulty and is capable of increased production at little cost.

One of the limited factors in the raising of poultry is the high cost of feeding a large flock. A flock of up to 25 birds can be fed on feed raised on a small property, but when over that number is kept if the area for growing feed is limited, feed must be purchased. More use could be made of corn and such grain crops as rejected peas and beans.

The egg production of the average hen is low in Jamaica, but can be increased by using better breeding stock, and selecting only the best hens to keep for breeding. Grading of eggs offered for sale would also do much to improve the quality of this product.

The poultry industry is one in which improvement can be made in a short time. The use of better stock and better feeding methods will do much to bring this improvement about.

PIGS.

Figures show that one of the main imports of livestock products is salted pork. As pigs can be raised in Jamaica with little difficulty, there appears no reason why it should not be possible to produce sufficient pork for local demands.

The type of pig raised is for the most part of mixed breeding, and few herds of well bred pigs are raised. The breeds most popular here are the Berkshire, Essex and Duroc Jersey. There is also some Poland China blood, but few pure-bred animals of this breed are found.

Pigs can be increased in numbers in a short time, and are a class of livestock which can be fattened easily on the locally grown feeds.

Using good type boars on the native bred sows will improve the type of pig raised.

GOATS.

This class of livestock is raised throughout Jamaica in large numbers but thrives best in the drier areas. Goats are raised for the meat

they produce rather than for milk. Increased milk production from goats would do much to augment the milk supply of the small farmer, as goats can be kept on a small acreage at little cost.

The type of goats raised is of mixed breeding and little has been done in the way of improvement. The type most common in Jamaica is small and lacking in constitution, but when crossed with such breeds as the Nubian, Anglo Nubian or Toggenburg, produces an animal considerably larger in size and one capable of giving a good flow of milk.

Goats form an important source of meat supply, and by the use of good sires the type of goat raised can be improved.

RABBITS.

Rabbits are not raised in Jamaica in large numbers and do not influence the meat supply to any great extent. It is, however, a class of livestock which can be raised to advantage on a limited area, and costs little or nothing to feed as locally grown feeds can be used to advantage.

RECOMMENDATIONS FOR IMPROVING THE LIVESTOCK INDUSTRY.

With all classes of livestock firmly established in Jamaica, there is a good foundation on which to build a sound livestock industry. Improvement can best be made by using well bred sires on the existing stock, rather than advocating the introduction of purebreds. The advantage of this is that the local stock is resistant to tropical conditions and has a hardiness which is not found in the pure-bred.

Improvement of livestock should be undertaken along lines of improved methods of breeding, feeding, management and marketing.

BREEDING.

The best and most economical system of breeding which can be used in improving our livestock is by grading, or by the use of well bred sires on the native female stock. By the use of such a sire, it is possible in five generations to produce an animal which is over 90% purebred. Such an animal while having a type which makes for economical production also possesses the hardiness which is so necessary for our climate. Production costs of livestock will thus be reduced, since it costs no more to raise a good animal than a poor one, and a greater financial return is obtained.

Livestock Improvement Centres are being established in the Island in order to improve the type of livestock raised. At each centre a Stud Station will be established where the farmer having livestock can have his females bred free of charge, the only restriction being that the females must be in good condition and free from disease. It is expected that such services will be well patronized, as it is through this method more than anything else that improvement can be made, and a better type of animal produced.

FEEDING.

No matter how well bred an animal may be, it will not produce to the maximum of its ability unless it is properly fed. Breeding sets the type, but feeding controls development.

One of the main difficulties in the livestock industry is the lack of a good cheap concentrated feed, which is high in protein. The lack of

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such a feed is felt in the case of beef cattle, dairy cattle, and poultry more than in some of the other classes of livestock, as such animals require a high protein ration for their proper development.

It is planned to conduct work in an attempt to obtain improved fodder and pasture crops for Jamaica, with the hope that better feeds for livestock can be obtained. Work is also being undertaken to conserve and store feed against time of drought. This can be done during the wet season by making grass into silage, which can be stored for use during time of drought. Such silage provides an excellent roughage and costs little to make.

MANAGEMENT.

Better management of livestock will aid greatly in reducing the cost of production. In the case of pigs it is possible to obtain two litters per year by proper management. Selection of good type of females, and breeding them at the right time will result in stronger animals, which will mature earlier, thus saving feed. Many of the classes of livestock at the present time require too long a time to reach market weight and in the case of dairy cattle and poultry are of low production. Such animals are uneconomical to raise, and greatly increase cost of production thereby reducing profit.

MARKETING.

The present marketing system for livestock products is un-organized, with the result that there is a lack of uniformity and quality in the product. Improvement in breeding and feeding will improve the type of stock raised, while improved marketing will do much to improve the quality of product. A better marketing system will also ensure a premium for the breeder of livestock who raises a good quality of product.

Livestock such as beef cattle and pigs, could be purchased on grade, as could also dairy and poultry products. By grading such products, the livestock farmer would be encouraged to improve the quality of his stock, since the higher grade of livestock or livestock product will receive a higher price.

CONCLUSION.

From the information already set out it is evident that something constructive must be done for the improvement of the livestock industry, if that industry is to supply the local demands for livestock products. Livestock, unlike crops, cannot be increased in a short time, and it will take at least three or four years before improvement can be made. Such being the case it is advisable to commence immediately.

In conclusion it may be said that improvement in the industry can best be made by:—

1. *Better breeding*—By using only good sires on females of approved type.
2. *Better feeding*—By the use of feeds which will develop the animal in growth and production.
3. *Better management*—By giving the animals better care, and improving pasture and housing conditions.
4. *Better marketing*—By having the livestock and livestock products sold by grades, thereby encouraging the production of a higher quality of product.

MARKETING OF JAMAICA BANANAS IN ENGLAND.

Adapted from a Lecture by P. W. MURRAY, Chief Inspector of Produce.

THE Marketing aspect of the Banana business is one that is but little known, little understood and certainly not appreciated by the average grower of bananas or other individuals engaged in this industry. The interest of the average grower ceases when he has received his check and slip from the Company's checker and his bananas are accepted for shipment. He should remember however, that the price paid for bananas in Jamaica is directly contingent upon the price received by the companies from the trade in England, which is in turn primarily dependent upon the quality of the bananas shipped.

Some time ago, through the kindness of Mr. Bradshaw I met Mr. Stockley the General Manager of Elders and Fyffes Company, who was on a visit to Jamaica. In answer to my query as to what exactly was wrong with our export of Jamaica bananas, Mr. Stockley said without the slightest hesitation that the trouble was due to the large percentage of short fingered fruit which was being shipped from the Island. The answer was unexpected, and with my preconceived ideas that if a banana was healthy, of fair weight, free from bruises, it should be marketable. I could not appreciate this insistence on a certain length of finger.

Last year I again had the privilege of meeting Mr. Stockley, but this time in his London offices. He willingly undertook to assist me to find out all the details about the short fingered bananas, and placed at my disposal the services of his Sales Manager who in turn arranged for me to see not only the retail marketing of bananas in London, but also the arrival of ships, the discharge of cargoes, and the buying, storing and marketing by the wholesale dealers. These investigations covered principally the ports of London, Avonmouth, Bristol, Liverpool, Garston and Manchester, and I had the opportunity of meeting the dealers and visiting numerous fruit shops noting the varieties of fruit offered for sale in competition with our bananas and the condition and manner in which such fruit was displayed.

On the arrival of a banana boat at the docks, mechanical lifts are installed in the boat in such a way that all the decks are unloaded at the same time and a thorough mixture of the fruit results. The fruit arrives still green in colour and from the wharf it is delivered by means of trucks or railway cars to wholesale dealers who hang it in specially constructed ripening rooms mechanically heated so that the ripening process is controlled to a fine point. On ripening, it is cut up into hands and placed according to grade in boxes padded and lined with tissue paper and labelled with the trade mark of the Company. The *firsts* are bananas of full and medium length fingers while the *seconds* are the short fingered ones. Each box contains an average of ten dozen fingers.

The fruit retailer places his orders for so many boxes of *firsts* and so many boxes of *seconds* with the wholesale dealer who has purchased by the ton from the Company. The average price of *firsts* is about 8/- and *seconds* about 4/- per box. It is therefore clear that the value of a cargo depends upon the percentage of *firsts* as compared with the percentage of *seconds* and by process of passing on prices, the shorter the fingers, the less money does the wholesaler receive from the retailer for a ton of bananas, the less does the Company receive from the wholesaler, and finally the less does the grower in Jamaica receive, as the price here is based on that abroad.

At the time I was in England last year—and there has been little improvement since—there was much discontent with the quality of the fruit arriving from Jamaica. Contrary to what one might expect, it was found far more difficult on the part of the fruit shops to dispose of *seconds* than to dispose of *firsts*. This is in keeping with the fruit trade generally, the fruit seller being able to sell only fruit of the best quality, but it depreciates still further the value of *seconds*, for should a fruit dealer find himself with 50% of his *seconds* still unsold at the end of the week, he orders no *seconds* from the wholesaler the following week. While this condition does not seriously affect the fruit dealer, the wholesale merchant find himself at the end of the week with a large quantity of *seconds* on hand, which he must sacrifice in order to clear his ripening rooms for more fruit arriving on Tuesday. He has no alternative but to sell his *seconds* at a figure far below what he expected, which makes his transactions for the week unprofitable and is reflected in his dealings with the Company for the following week, and ultimately reacts on the grower in Jamaica.

The following extracts of reports from wholesale buyers of fruits covering one week's operation reveal in no uncertain terms the difficulties to be faced in the marketing of our bananas:

The difficulty of disposing of the excessive yield of medium and seconds from current Jamaica arrivals at economic prices is with us again this week in acute form.

Handlers are critical of the amount of small sized fruit in present arrivals.

Our prices for best have been maintained, but it is certain that we will have to accept less money for "medium" and "roughs" this week-end.

Our main trouble is the disposal of medium and smalls.

We are getting numerous complaints about the quality of recent cargoes.

The Jamaica fruit ex — — was of very poor grade.

Smalls might cause a break in price before Saturday. Whatever happens we shall clear this grade.

Mediums and seconds are providing difficulty in clearing at economic prices.

A certain amount of uneasiness has been created owing to the smallness of recent Jamaica fruit, with its resultant heavy yield of seconds.

Demand is bound to fall away to a certain extent for some little time, especially for seconds of which there is a heavy yield.

We are getting the usual complaints regarding poor fruit.

Fruit received ex — — appears to be good although on the small side.

The small grade of recent Jamaica arrivals has not enabled us to pack a more attractive flat in order to stimulate the retailers' interest. Seconds tend to accumulate and only by accepting easier rates are we clearing this grade.

It is well for us to remember that in the banana business, the grower of the fruit is by no means the only contributor to the success of that business. The Company which provides ships and operates them at tremendous cost; establishes and organizes the markets and finances the whole industry, has every right to be considered, and every effort should be made by the grower to produce such fruit as will make the business profitable both for himself and for the Companies. Further, the grower who produces poor short fingered fruit only serves to

adulterate cargoes and lessen the returns from the better cultivated and heavier fruit—a condition which is harmful from all points of view.

I was astonished, alarmed and distressed to see the terrible conditions in which our bananas arrive in England. Over 70% of each cargo is so damaged, bruised and injured that it would be unsaleable from our point of view. The damage is certainly done on board the boat and it appears desirable for further and more exhaustive tests to be made in the stowing of fruit in order to minimize the waste.

Another serious cause of loss is stem-rot disease. Selectors, Inspectors and others who pass on fruit for shipment in Jamaica should rigidly reject all weak or thin-stemmed fruit as these appear to suffer more from stem-rot than healthy robust fruit. Further experiments in the control of this disease are indicated.

The Jamaica banana is undoubtedly *the* banana for the English market. Its keeping quality, its size and appearance give it advantages not possessed by any of its competitors—the Canary and Brazilian bananas—both of which are good and improving. Recently Brazil has prohibited the export of six and seven hand stems. The Canary Islands export only “bunches,” and these are wrapped in trash and individually crated.

Our great advantage lies in the protection given Jamaica by the British Government in placing an import duty of £2 10/- per ton on fruit going into the English market from any other than a British country. This amounts to nearly £4,000 per cargo. It is the opinion of the trade in England that a definite responsibility rests on the Government of Jamaica in view of the fact that Great Britain has practically given Jamaica the exclusive right to her banana market. We should therefore endeavour to satisfy the English trade with the quality of the fruit that we ship.

The following measures appear desirable if any real improvement in this trade is to be accomplished:

- (a) The elimination of all poor and definitely short fingered fruit which at present slip into our cargoes. This cannot be done efficiently by the six Government Inspectors of Produce now employed, and it would not be economical to increase the number of employees under this head. More Government control can, however, be satisfactorily administered if it were made obligatory on everyone who checked and passed fruit to have been previously certified by an Inspector of Produce as a fit and proper person to discharge such duties.
- (b) It should be made an offence under the Regulations of the Produce Law for anyone to purchase or attempt to export or offer for sale for export bananas, any finger of which did not come up to a certain standard measurement.
- (c) With regard to stem-rot trouble, no harm can be done and good might result, were further investigations of causes and means of control carried out.
- (d) There should be further experimental work aiming at curtailing the losses caused by damage of all kinds in the stowing of fruit on ships.

In conclusion, there rests with us a definite obligation to satisfy the banana trade in England of which we have the monopoly at present. Failing this, there is no telling how long Jamaica will continue to enjoy the preference in the English market, which preference is essential to the continuation of our banana trade.

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FACTORS AFFECTING THE CONTROL OF *CERCOSPORA MUSÆ*

Lecture by F. S. WARD, Plant Pathologist.

THE chief factors affecting the control of *Cercospora Musæ* may be considered as—

- (1) Natural or physiological and
- (2) Artificial or fungicidal methods.

The five chief natural factors include—

- (i) Humidity or moisture;
- (ii) Temperature;
- (iii) Soil;
- (iv) Wind;
- (v) Resistance and Immunity.

The discussion of fungicidal methods will be confined to Bordeaux and Perenox, the chief sprays used at the present time.

(i) *Humidity or moisture*: The presence of water on the leaf surface for a prolonged period is essential for the germination or growth of the fungus spores or seeds which cause Cercospora Leaf Spot. These spores are non-motile, that is they are unable to move about in the film of water on the leaf surface. The occurrence of Leaf Spot is, therefore, largely influenced by

- (a) Type and time of rainfall and
- (b) Duration of dew deposit.

The rains which fall late in the afternoon are more conducive towards infection owing to the water on the leaf surface remaining for a longer period than in the case of the morning rains which are usually followed by sunshine thereby preventing a deposit of water on the leaf surface for a prolonged period. The drizzle type of rain is also more conducive towards infection than the heavier rains as the latter tend to wash off the spores or seeds from the leaves.

(ii) *Temperature*: soil and atmospheric. This factor is closely linked with that of humidity or moisture, the disease as a rule reaching its maximum activity during the period of minimum temperature and maximum humidity. Vegetative growth and spore production appear to be retarded by temperatures above 80 degrees F.

(iii) *Soil*: The presence of adverse growing conditions such as poor drainage, deposits of red shot (pyrites) e.g., Cambridge Valley area and poor cultural practices, appear to increase the susceptibility to Leaf Spot infection as the result of decreasing the vigour of the plant. With such unfavourable growing conditions as above it is often found that an unhealthy condition of the root system, as evidenced by the darkened and decayed condition of the rootlets, particularly the extremities, is associated with the presence of Leaf Spot infection.

(iv) *Wind*: It is often found that apart from Leaf Spot infection, short and thin fingered bananas are found in the areas which are exposed to winds. The natural habitat of the banana is found along sheltered river valleys and on hill-slopes which are not exposed to winds. The tattered and feathered condition of leaves which have been exposed to the action of high winds will invariably indicate the production of poor fruit. Each tear of the leaf represents a wound and each wound represents so much decrease in the vitality of the plant and greater susceptibility to Leaf Spot infection. Where bananas are grown on exposed areas, some form of wind break should be grown if possible.

(v) *Resistance and immunity*: At the present time it may be said that all commercial varieties of the banana are susceptible to *Cercospora* Leaf Spot, not only in Jamaica and the Caribbean zone but also in Fiji and other banana producing countries through out the world. These susceptible varieties include the *Gros Michel*, *Cavendish* (Dwarf, Canary, Governor, Chinese) and *tall sports* of the *Cavendish* variety. As the result of work carried out by Cheesman and Wardlaw in Trinidad, the following species collected show a high degree of resistance—*M. accuminata*, *M. balbisiana*, *M. Textilis*, *M. ornata*, *Pisang Lilin* and several undetermined species from Assam and Burma. The varieties have been grown in close proximity to an infected stool of *Gros Michel* *M. violascens* (Malaya) and undetermined species from Samoa and New Guinea have shown occasional spotting, but in each case these have been confined to the oldest and senile leaves. In a collection of five varieties of *M. accuminata* all have been free from spots excepting one Clone in which typical spots have been found on the oldest leaf only. To these could be added as highly resistant the Jamaican S. 19, somewhat similar to the I.C. 2 from Trinidad and varieties of the plantain (*Musa paradisiaca*) in other parts of the Caribbean. Although the "Bluggoe," one of the plantains, is recorded as being highly resistant in Trinidad, the plantain in Jamaica appears to be immune, and may be observed growing amongst *Gros Michel* bananas heavily infected with *Cercospora* Leaf Spot although the plantain remains free from infection.

Varieties of the *Musa sapientum* type from the East which have been found to be immune to Leaf Spot are as follows: *Pisang Raja*, *Pisang Awak Legor* and *Pisang Palembang*. There are also three unnamed varieties which have been found to be immune to Leaf Spot.

It must be realised that considerable research work is required before a suitable commercial variety of banana is found which apart from being highly resistant or immune to Leaf Spot must also be highly resistant to Panama Disease. The question of obtaining suitable marketing and shipping qualities must also be given full consideration. Many of the wild species mentioned above, contain seeds which it is desirable to eliminate from seedling varieties by means of successive generations of plant-breeding work before any such varieties could be found to be marketable. After a particular suitable variety has been found to be highly resistant to disease it must then be grown under varying conditions of soil and climate in order to test further the susceptibility to disease.

2. FUNGICIDAL METHODS :

Until a satisfactory variety, highly resistant or immune to Leaf Spot has been found, spraying will be the most effective method of controlling the fungus causing *Cercospora* Leaf Spot. Since spraying experiments first started in 1937, considerable economies have been brought about with regard to the amount of spray per tree or trees and the concentration required with regard to the copper colloid compound such as Perenox. To mention the amount of spray required per acre is somewhat misleading without mentioning the number of trees per acre which vary considerably according to type of planting. It stands to reason for example that where double-planting is carried out, approximately twice as much spray per acre will be required when compared to single planting. Other important factors to be considered in connection with the amount of spray required per acre are (1) fineness of the spray atomization which largely depends on the type of

disc used on the nozzle of the spray-gun and the pressure maintained, (2) the number of leaves per tree together with the number of followers or suckers. In connection with the spraying of the followers, it is just as important that these should be sprayed as well as the parent plant owing to the incidence of secondary infection from the older trees. The foliage of the followers is also subjected to a longer period of dew deposit than the upper leaves of the older trees with the result, that there is greater opportunity for the germination of the fungus spores on the lower leaves than on the upper leaves. It will be seen, therefore, how necessary it is to spray the lower leaves as well as the upper leaves. It is often found that Leaf Spot lesions are numerous towards the tips of the leaves which is largely due to one or all of the following causes:—

- (i) improper spraying as the result of too much concentration on the central portion of the tree and insufficient movement of the spray-gun from one side to the other;
- (ii) insufficient pressure to reach tips of central leaves;
- (iii) the growing and expansion of the young tissue of the central leaves with the result that there is a greater opportunity for infection to originate in between the early spraying cycles. This opportunity for infection is also aided by the presence of a more waxy surface on the younger leaves, thus preventing a more consistent cover of spray on the leaf surface than in the case of the older leaves.

At the present time it cannot be emphasised too strongly the necessity for spraying on account of the epidemic form of this disease. Even in those areas where there is little or no Leaf Spot infection, it would be advisable to carry out at least one spraying cycle during the latter part of August and another application during the early part of March in preparation for the periods during which the infection reaches its greatest activity.

STICKERS AND SPREADERS.

Under certain conditions of heavy rainfall, it appears that stickers improve the adhesive qualities of both Perenox and Bordeaux. Experiments in this connection are being carried out in the higher parts of St. James and elsewhere.

Experiments also show that amongst the more promising stickers and spreaders, are the following:—

- (1) Agral. III.
- (2) Kieselguhr.
- (3) Bentonite.
- (4) Banana Juice.
- (5) Spreader B.
- (6) T.P.R. 60.
- (7) Sulpholeum.
- (8) Alboleum.

The question of costs will largely limit the practical application of these compounds. It is anticipated, however, that shortly a more satisfactory sticker and spreader compound will be incorporated in the Perenox fungicide.

LEAF PRINTS SHOWING COPPER DEPOSIT.

Potassium ferrocyanide tests show that this is not a reliable test as far as Perenox is concerned. This is due to the fact that after the ferrocyanide test, the cuprous copper present in Perenox does not

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become apparent on account of a white compound, cuprous ferrocyanide, being formed. The ferrocyanide test records only the presence of cupric copper present in a Perenox deposit on the leaf surface.

A satisfactory test has therefore been evolved which is effective for both Bordeaux and Perenox. This test is carried out as follows: Leaf print papers are soaked in a solution of 0.1 gm. rubianic acid, 100 c.c. of alcohol and 200 c.c. of water. The remainder of the procedure is similar to the ferrocyanide test, excepting that the papers used should be almost dry.

REGISTRATION OF CANE FARMERS.

THE attention of Cane Farmers is invited to the following letter recently received by the Secretary. Ed.

"I am directed to advise you that cultivators who desire to plant sugar cane should make application to the Governor in Privy Council to become registered cane farmers at the factory they wish to supply. Their application should be accompanied by a statement from the factory to the effect that the factory will accept any canes the registered grower may deliver."

(Sgd.) H. H. CROUCHER,
Secretary. The Sugar
Control Board.

NOTES ON JERUSALEM ARTIOCHOKES.

By W. F. TYLER.

In England, with its high rainfall, tubers of moderate sizes—up to 2½" are planted about 3" deep.

About 14 months ago I planted a patch in that manner, and only now are some of them ready for cropping; some are still only a few inches high. I credit this long period to the dry year, to showers not penetrating the soil, the site having a considerable slope. I used no fertilizer as the soil was ordinary field stuff. Nevertheless, the plants are producing 3½ to 4 lb. of a size considerably larger than usual.

A market gardener here tells me that by his methods he gets three crops a year, namely, in April, August and December, and that the period of growth is 4 to 5 months. Considering that the ripe tubers can stay in the ground for two months without detriment this should mean a practically continuous supply. Market experience, however, does not confirm this; there are periods when they are not on sale.

The native method of growing is, I understand, thus:—When a plant is cropped some of the nodules—perhaps the top ones on the verge of sprouting—are planted in a nursery quite close together and barely covered with soil. They are watered daily. At a certain stage of growth they are transplanted so as to be covered about 1½" and with a teaspoon of fish manure. They are not subsequently watered.

My last year's attempt to grow in that way, but without manure—failed. I am now trying it again with manure, and with the intention of watering when dry after transplanting.

Later Observation.

I credited the slow growth to the dryness of the year. Nevertheless, plants which were amply irrigated (by a kitchen drain) also took over a year to grow. That fact opens up the question of periodicity. I now suggest that the natural cropping season is the autumn after a long growth and that thus the exceptionally large tubers I sent you are produced.

On the other hand out-of-season crops with small tubers can be obtained by the Jamaica method referred to in about the same way that asters, in stunted form, are flowering now. (October).

4 H CLUBS.

MRS J. W. Howe, Headmaster of the Jamaica School of Agriculture addressed the Board on the proposal to extend the Juvenile movement and operate the Branches along the lines of the 4 H Clubs.

He said he would endeavour to outline briefly the work which was being done by the Department of Agriculture in Canada and the United States in regard to Club work.

He had worked with the United States Department of Agriculture in South Dakota as District Club Agent for three years and for the Department of Agriculture in Canada in a similar capacity for five years. His experience in the work led him to believe only one thing—that from the results shewn it was in his opinion one of the most important factors in the improvement of agriculture in the world today. This type of work he said, had progressed more in the United States because they had made a special study of it and it had strengthened and furthered agriculture in the States in a way no other project had done. They worked on the principle there, that it was difficult to teach an old dog new tricks—that it was difficult to get some of the old farmers, who were wedded to the methods which were in many instances peculiar to themselves, to take up new ideas. Working with the younger generation through the agency of the 4 H Clubs was a splendid and easy way to improve types of agriculture, and it had also served admirably to stem the tide of migration from the country to the city—a problem that had always been foremost, especially during the last fifteen to twenty-five years on the North American continent.

The designation 4 H he said indicated Head, Heart, Hand and Health; representing Head for clearer thinking, Heart for greater loyalty, Hands for larger service and Health for better living. That he said was the motto of the 4 H Clubs, and it was on those principles that they worked. The Clubs were organized under the Extension Service Branch of the Department of Agriculture in the United States and Canada. They were looked after by County Agents akin to the Agricultural Instructors, who were responsible to the Head Office for the Club work in the parishes or counties. This work was closely linked with civic organizations such as the Rotary Clubs and these bodies very often financed the projects of boys and girls. In many instances the organization was done through schools. In one section where he had been in charge there were at one time 15 counties covering an area of about 100 miles by 200, and it had been necessary in many places to start a club and work from the ground up—using the schools as centres.

The work was divided into projects undertaken by both boys and girls. In the case of boys, projects, such as rearing dairy cows, covering periods up to four years—from the calf to the dairy cow—was popular. Every member of a Club was required to keep an accurate record of the work undertaken, and his completed record book would be handed in to the country Agent or Agricultural Instructor. Marks were given for completed work. In the case of a dairy project a boy would get a dairy calf and look after it until it was ready for breeding. After the calf was bred, he would continue his care of her until she calved. Then he would have to see after milking and so on until the project was completed. He would of course keep a careful record of what he had done, amount of feeds used, milk obtained and so on. The result would be a proper record of his four years' work which would

be checked by the County Agent. In this way the boy was taught the necessity of careful detailed work and the advantage of carrying on his work on right lines. In the case of beef cattle, the project lasted from 18 months to two years. Other projects such as the rearing of pigs, goats and poultry were undertaken. A boy would take a fat pig and look after it for a year and then market it.

Club members were generally encouraged to rear pure bred animals, and it was amazing to see the results that were obtained. In the case of poultry a member often started with half-a-dozen or one dozen eggs from pure bred hens. This was carried through by boy or girl until a good flock was raised. Girls were urged not to take up livestock work with the exception of poultry rearing. It was considered that it was not a girl's place to be raising pigs or cattle but they were encouraged to take up projects in poultry-keeping, vegetable gardening, and home projects, such as cooking, dressmaking, nutrition, and gardening. To suit conditions in Jamaica, other projects could be added.

A Club when organized must have ten members and these members must each undertake one project. Boys were allowed to take up more than one project if they so desired, but were not encouraged to undertake more than two projects at a time. It was necessary that a Club should have ten members undertaking the same type of project.

The Clubs were under the supervision of local leaders, and people interested in that kind of work were assisted in organizing these Clubs. The Club members held meetings which were conducted by the boys and girls under the supervision of the local leader. These leaders got no remuneration, and upon them rested the decision as to whether or not each Club was a success. In the United States there were some 400,000 boys and girls engaged in Clubwork. Thus it was acknowledged that a great deal of work could be accomplished through the younger people, which would be difficult to get done through the older people.

A Demonstration Day would be arranged, and this would be quite an event, when the boys and girls would be presented with different kinds of stock. The stock were allocated so that the different Clubs would be enabled to pursue their different projects. The County Agent would then visit the boys and girls as often as possible and give them as much help as he could. Continuing, Mr. Howe said that in the countries where he had done this 4 H Club work, competitions were organized amongst the Clubs, successful competitors in these would then advance to compete in County Fairs, and the successful ones in these County Fairs would advance further and complete in State Fairs. Here in Jamaica it would be possible to have competitions in the Clubs, and then in Parish Shows and then finally in All-Island or other organized Shows. To be admitted as a competitor a member had to complete his or her project. The success of each Club was gauged by the percentage of completed projects. Of course, prizes were awarded to the successful competitors at the various Shows, and from his experience the competition in every case had been very keen among the boys and girls. This competition contributed more to the improvement of the type of stock raised than any other factor. This work gave the youngsters a sense of responsibility both in respect to the animals they take care of and the plots of land they cultivate, and in every instance they were required to bring each project to completion. It was found that they were much more interested in agricultural pursuits and they remained on the farms of their own volition rather than go off into the cities to get hired for wages.

Mr. Howe then gave instances where individuals had from small beginnings in the Clubs under difficult circumstances made great successes, paying their way through Colleges and continuing into outstanding citizenship.

He said he saw no reason why a similar effort could not be made in Jamaica especially as there was a nucleus in the Juvenile Branches of the Society. He volunteered to do all he could to help if it was decided that such a project should be launched.

MARKETING NOTES.

PRICES for local products are as follows:—

<i>Annatto:</i>	Well-cured, prime, red seed	16/-	per 100 lb. dlvd.	Kgn.
<i>Cocoa:</i> ...	Ordinary ...	22/-	" " " "	" "
	Estates Fertd. ...	23/-	" " " "	" "
<i>Coffee:</i> ...	Good Ordinary ...	32/-	" " " "	" "
	Fine Ordinary ...	34/-	" " " "	" "
	"B" type ...	35/-	" " " "	" "
	"A" type ...	36/-	" " " "	" "
	Manchester "A" ...	37/-	" " " "	" "
<i>Honey:</i> ...	Pale Amber ...	5/6d.	per gall. dlvd.	Kgn.
	Light Amber ...	5/-	per gall. dlvd.	Kgn.
	Dark Amber ...	4/6d.	" " " "	" "
<i>Goat Skins:</i>	Well cured and free from			
	holes ...	1 5/4d.	per lb. dlvd.	Kgn.
<i>Kolanuts:</i>	Well cured, sound quality	14/-	delivered	Kgn.
<i>Lime Juice:</i>	Good, fresh, green, top-pulp	1/1d.	per gall.	
<i>Orange Oil:</i>	Sound quality—well filtered			
	—new crop: Sweet ...	5/6d.	per lb. dlvd.	Kgn.
	and Bitter ...	5/6d.	per lb. dlvd.	Kgn.
<i>Sarsaparilla:</i>	Well cured, red roots ...	40/-	dlvd. Kgn. nett wts.	
<i>Wax:</i>	Pure and clear ...	1/-	per lb. dlvd.	Kgn.

AUTHORIZED PERSONS.

Return of arrests to 30th September, 1939.

St. Andrew	...	...	...	16
St. Thomas	...	...	...	4
Portland	...	...	...	6
St. Ann	...	...	...	5
St. Mary	...	...	...	8
Trelawny	...	...	...	5
St. James	...	...	...	5
Hanover	nil
Westmoreland	3
St. Elizabeth	1
Manchester	2
Clarendon	21
St. Catherine	5

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KINGSTON.

LIVESTOCK IN THE WEST INDIES.

By J. W. HOWE, Dip. Ag., B.S.A., M.Sc., Headmaster Government Farm School, Superintendent Government Stock Farm.

Concluded.

CHAPTER XII.

BEEF.

As has already been mentioned, the quality of beef generally found in the Tropics is not high, due mainly to an inferior type of beef animal being raised, and the fact that practically no finishing is done, the cattle being fattened on grass only without the use of concentrates, which are so important in imparting the finish so necessary to good beef.

Good beef can only be produced by properly feeding a good type of beef animal.

How the beef carcass is formed—When the calf is born the future development depends on the ancestry, the amount and kind of feed it receives, and the way in which it is managed. At the time of birth the animal carries a certain amount of fat on the body. If, however, the animal is not allowed the proper amount of feed it will lose the calf fat, and receive a decided set-back in development.

As the calf grows, the bones become larger and harder, since they are required to carry a greater weight. The muscles too, become thicker and more tough mainly through use. Especially is that true of the muscles of the legs and neck.

After the animal is mature there is practically no increase in the size of the muscle, and feed is used by the animal to put on fat. It is for this reason that older animals sometimes carry a heavy amount of fat, and in the case of cows tend to put fat on in patches, especially over the loin and tail-head.

How feeding affects the carcass—The quality of the meat depends more on feeding than any other factor. In order to contain the correct proportion of lean and fat the animal must be properly developed, and fed with the feeds which will produce muscle and fat. An animal which is stunted when young, never does recover later on, and consequently will not produce as suitable carcass as an animal which has made consistent development throughout its life.

How type affects the carcass—The choicest beef is produced by an animal which conforms to the beef type, and one of the reasons for a poor quality of beef in the Tropics is due to the fact that for the most part the cattle raised do not conform to the beef type and have too much bone in proportion to the amount of lean meat.

Cattle of the dairy type do not make good beef no matter how well fed they are. A comparison of carcasses from beef type animals and dairy type animals shows that those of the dairy type lack the muscling and fleshing over the rump, rib, and body generally, while the carcass from the dairy animal is decidedly lacking in this respect. The beef animal will be heavily muscled over the areas of the important cuts, while the dairy animal shows lack of muscling over these parts. The dairy animal has a greater percentage of offal than the beef type

animal, and consequently gives a lower dressing percentage than does the beef animal.

While there is not a great difference between the animals as calves the difference becomes more apparent as the animals develop. For this reason it is quite possible to produce a good quality of veal from a dairy calf, but the animal does produce an inferior quality of beef when mature as compared to the beef type animal.

Selecting the animal for slaughtering—In selecting the animal for slaughtering care must be taken to see that it is healthy, and animals which are suffering from disease should not be used for human consumption. Tuberculosis is perhaps the most common disease of cattle in the tropics which renders the meat unfit for use. Very often it is not possible to diagnose tuberculosis in an animal when it is alive, as it may appear to be perfectly healthy. The same animal when slaughtered may show distinct evidence of tuberculosis when the carcass is inspected, and for this reason it is necessary that a rigid system of meat inspection be carried out if the health of the consumer is to be safe-guarded.

There is nothing to be gained by slaughtering an animal which is not in good condition as the meat is bound to lack quality. By condition is meant the amount of fat the animal carries. A good butcher animal should have an even covering of flesh over all parts of the body. If the animal is fat the fat will be inter-mingled with the lean and produce a condition known as "marbling." It is marbling that makes the quality in beef and such a condition is found only in well fed beef animals of good type. Marbling does not show in the case of beef from dairy animals.

Beef from a thin animal or one in poor condition is dark, and tough. Such beef is usually stringy and coarse in fiber, and lacking in fat it tends to become dry when cooked.

Slaughtering—After selecting an animal in good condition it should not receive any feed for twenty-four hours before slaughtering. It should be watered during this time. By with-holding feed from the animal before slaughtering bleeding becomes more thorough, and less blood is left in the meat. If the bleeding after slaughter is insufficient, the meat will have a spotted appearance due to the highly coloured blood vessels being spread throughout.

The animal should be kept at as near normal temperature as possible and do not let the animal get excited. An excited animal will give a meat that will turn dark in colour and which will not keep. This point is an important one and one which many butchers in the West Indies disregard.

Killing the animal may be done by shooting, stunning with a hammer, or by the use of a humane killer. The latter is becoming more popular, but the former methods can be used successfully. If a gun is used the animal should be shot in the centre of the forehead. When stunning the animal use a heavy hammer and strike the animal a sharp blow between the eyes. If the humane killer is used it must be fastened to the head of the animal and the trigger properly set. This trigger works on a spring which releases a metal pin with such force that penetrates the skull.

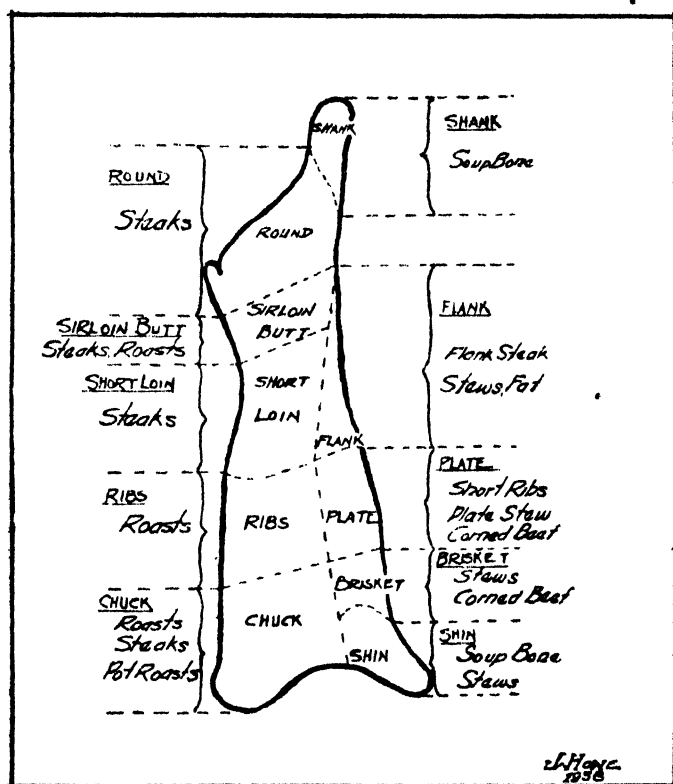
After the animal has been stunned or shot it should be struck with a knife by inserting the knife with the back of the knife against the breast bone and cut in towards the back bone about five inches. Do not cut

back too far as the chest cavity may be punctured, and the blood will enter the carcass. After the arteries have been severed the animal should then be left to bleed.

Skinning should next be done, while the carcass is hot, and should be started at the head and continued to the rear. The hide should be treated with salt and left to cure, after all the fat has been scraped off.

After the viscera or intestines have been removed the carcass can be split down the backbone and then hung to ripen. Beef should be hung at a temperature of 50 degrees F for at least a week in order to produce the best quality.

Cutting the Carcass—The method of cutting the carcass varies with the market demands. The carcass is cut in a different way in England to the method used in the United States or Canada. The following diagram gives a good idea of the various cuts of beef. Both wholesale and retail cuts are shown.



By-products of the Beef Industry—The trimmings from the carcass can be used for sausage. The honeycomb or reticulum or third stomach can be used for tripe, while the intestines can be used for casings for sausage making. The liver, kidneys, heart and pancreas or sweetbreads can all be used. It is, however, not possible for the small butcher to use the horn, hooves, hair or bone without first having special equipment with which to treat these parts.

Celebrate Christmas



the same **"Old"** way:

Drink

"WRAY & NEPHEW'S"
BLACK SEAL
& APPLEMONY



BRANCH NOTES.

CLARENDON: Arthur's Seat; Croft's Hill P.O.—Meeting held 6.10.39. Present: Messrs. N. C. Wilson, President; Hy. Ed. Easy, 2nd Vice-President; M. A. Davis, Acting Secretary, 20 members and 7 visitors. Two new members were enrolled. Correspondence was read. Authorized Persons reported. Preparations were made for a debate. The meeting terminated with "the King."

M. A. DAVIS,
Secretary.

Brandon Hill: Colonel's Ridge P.O.—Meeting held 21.8.39. Present: Instructor Thompson, the President, the Secretary, 18 members and 4 visitors. The Silver Jubilee was deferred. Correspondence from the General Secretary re purchase of seed potatoes was read. Four Authorized Persons reported. The Instructor gave an address which dealt chiefly with the improvement of soil conditions. He advised the rearing of small stock. A hearty vote of thanks was accorded him. The meeting terminated with the singing of the National Anthem.

(Miss) E. A. GRAHAM,
Secretary.

Hayes: Hayes P.O.—Meeting held 27.9.39. Mr. A. E. Lindsay presided. Correspondence was dealt with. It was decided that a delegation of five persons should represent the Branch at a meeting re Food Production to be held at Chapelton. The question of affiliating with the Loan Bank at May Pen in connection with Agricultural Credit was discussed. Copies of the letters sent to the Manager of the West India Sugar Company and Mr. A. M. Pawsey, were read. These letters asked that the people of Hayes be allowed to cultivate on the lands owned by them in the Hayes Hills, at a pepper corn rental, during the present unrest. The singing of the National Anthem brought the meeting to a close.

(Miss) W. M. C. Wood,
Secretary.

Milk River: Milk River P.O.—Meeting held 13.9.39. Present: The President, Mr. Thos. H. Barrett; 12 members and 6 visitors. The President exhorted members to support the branch. The delegate to the Half-Yearly General Meeting gave a report. Matters of vital importance to the agricultural development of the district were fully discussed. It was agreed that a telegram be sent to the Parochial Board re the polluted water supply caused by severe drought. The meeting stood adjourned with the singing of the National Anthem.

S. N. BRISCOE, Secretary.

Rock: Osborne Store P.O.—Meeting held 23.8.39. Present: Mr. H. D. Coleman, 1st Vice-President; Messrs. T. C. Swainson, 2nd Vice-President; D. E. Blair, Joseph Barnabeigh, E. W. H. Patterson, W. Dacres and a few visitors. Letter from Secretary of C.B.A. was discussed. Re Siding at the Rock Halt: This was left to be discussed by a committee. The Buck which was lately purchased by the Society was reported to be in very good working condition. The Post Office which was promised by Government to be erected between Ashley and Rock was discussed. Authorized Person D. Edmund Blair reported "all correct." The meeting terminated with the singing of the National Anthem.

S. A. H. FRANCIS,
Asst. Secretary.

Stewarton: Mocho P.O.—Meeting held 5.9.39. Present: Messrs. V. H. Lawrence, President; Chas. Morgan, 1st Vice-President; Instructor Virtue, 20 members and the Secretary. A report from the Mocho Associated Committee meeting was given and discussed. Full consideration was given to the proper regulation of the plot. The report of the Half-yearly General Meeting was deferred. Authorized Persons gave in their reports. Three new members were enrolled and fees collected. The Instructor gave an interesting lecture. The National Anthem closed an interesting meeting.

(Miss) I. I. O'REILLY,
Secretary.

HANOVER: Sandy Bay; Sandy Bay P.O.—Meeting held 3.10.39. Present: Messrs. R. S. Brooks, President; R. A. McNish, 1st Vice-President; A. H. Taylor, 2nd Vice-President; J. B. Lawrence, Secretary; Instructor Hastings, 12 members and about 60 visitors. Mrs. W. H. Rigg, a member of the Branch, made an appeal to the house for help on behalf of the Women's League in Kingston, the members of which are working very hard to assist in the war. Correspondence from the Food Production Board was read, and from the Assistant Secretary of the Parent Body re a Rat-Killing Campaign. Instructor Hastings stressed the necessity for increasing the production of foodstuffs. The singing of the National Anthem brought the meeting to its close.

J. B. LAWRENCE,
Secretary.

MANCHESTER: Hatfield; Hatfield P.O.—Meeting held 13.9.39. There was a fair turn-out of members. The tomato-growing project was discussed, and members agreed to start preparing the land. The scarcity of foodstuffs was pointed out. Several members urged that immediate steps should be taken to get lands. The President addressed the meeting. Members rose and sang the National Anthem.
(Miss) G. I. BAILEY,
Secretary.

Mizpah: Walderston P.O.—Meeting held 11.9.39. Present: Rev. P. E. Holmes, President; Mr. C. D. Neilson, I.S.O., J.P., 30 members, 5 visitors and the Secretary, Mr. E. W. Roberts. Mr. D. D. Phillips, member of the Board of Management, and Mr. J. T. Hemans, M.P.B. for Manchester, attended to address the meeting. The Secretary was instructed to write the Clerk of the Parochial Board asking for further consideration of the request for a public tank for the Chantilly area. Eight members signified their intention to enter the Sweet Potato Competition. Rules were drafted for this competition. Correspondence was dealt with. The Secretary was instructed to reply acknowledging receipt of an invitation from the Zion Hill Branch to a proposed concert. A resolution re the formation of Juvenile Branches at Mizpah, Mt. Olivet, and Chantilly met with sympathy. A report from the delegate to the Half-Yearly General Meeting was received and adopted. The Treasurer presented a statement. An encouraging report re the Branch's buck "Joe Louis" was read. Authorized Persons reported "all correct." Mr. D. D. Phillips, member of the Board of Management, encouraged the development of sweet potato culture and the Citrus Industry. Mr. J. T. Hemans, in a brief address, showed the necessity for taking pains, assisting Nature by systematic manuring and cultural methods. The speakers received the thanks of the members. It was decided to work on the Demonstration Plot on Friday, 15th September. The meeting adjourned with the singing of the National Anthem.

E. W. ROBERTS,
Secretary.

Porus: Porus P.O.—Meeting held 11.9.39. Mr. T. N. Davis, 2nd Vice-President, presided. There were several members present, and Messrs. Lecky, Lewis and Peterkin, were among the visitors. Mr. Lecky, in his address, said he had been sent to gather particulars for the establishment of a Bull station so that the strain of the cattle could be improved. He spoke on Food Production. He advised members to plant Guinea, Bermuda and Wynne grass. Several questions were asked by members. The meeting terminated with the singing of the National Anthem.

C. ROWLAND,
Secretary.

Victoria Town: Victoria Town P.O.—Meeting held 19.9.39. Present: Messrs. W. A. Walters, 1st Vice-President; the Secretaries; Mr. J. D. Forbes, M.P.B., and other members. The Secretary informed the members she had written to the Parent Society re the purchase of an Anglo-Nubian buck. The matter of an Experimental Plot was discussed, and it was decided to establish one on lands adjoining the teacher's cottage. Mr. J. D. Forbes was thanked for his offer of a plot. Correspondence was read from the General Secretary, and the Secretary Manchester Branches Associated inviting members to attend a special meeting to be held at Mandeville for the purpose of discussing Food Production. A deputation was named to wait on the Parochial Board re Relief Work. Authorized Persons reported no arrests. The meeting was terminated by the singing of the National Anthem.

(Miss) L. A. ALLEN,
Secretary.

Zion Hill: Williamsfield P.O.—Meeting held 8.9.39. Present: the President, Secretary, and 12 members. It was decided to stage a concert during October in aid of the Branch. The meeting adjourned.

E. L. STEPHENSON,
Secretary.

PORTLAND: Bangor Ridge; Bangor Ridge P.O.—Meeting held 3.8.39. Present: Mr. Wm. Barnes, 1st Vice-President, presiding; Instructor Wilmot, 12 members, many visitors and the Secretary, Mr. G. A. Barnes. Correspondence was read from the Secretary of the Leaf Spot Control Board re Leaf Spot disease, and from the Director of Agriculture re Cane Cuttings. The Instructor addressed the meeting on "Leaf Spot Disease" and told of the measures adopted by Government to prevent its spread. Mr. G. A. Barnes, delegate to the Half-Yearly meeting, gave a concise report for which he was heartily thanked. The Branch decided to purchase a Saanen Buck. The National Anthem terminated the meeting.

GEORGE A. BARNES,
Secretary.

Craigmill : Buff Bay P.O.—Meeting held 5.9.39. Present: Messrs. A. A. Palmer, 1st Vice-President; A. T. Wilmot, Instructor; 8 members, several visitors, and the Secretary, Rev. T. Lawrence. The 1st Vice-President presided. Correspondence was read and discussed. The delegate to the Half-Yearly General Meeting gave a lengthy report of the proceedings, for which a vote of thanks was accorded him. The Instructor made a few remarks. The singing of the National Anthem terminated the meeting.

(Rev.) T. LAWRENCE,
Secretary.

Maidstone—Bourbon : St. Margaret's Bay P.O.—Meeting held 12.8.39. Present: Mr. N. Vincent Thompson, M.P.B., President; Instructor G. R. Graham; the Asst. Secretary, 9 other members and some visitors. Correspondence was read from the Department of Science and Agriculture re delay of rooster, and in connection with the Banana Borer. The Instructor encouraged members to go in for more intensive cultivation. The Branch decided to buy a scale as soon as funds were available. The President, in his closing remarks, advised those present to procure plots on the Mt. Pleasant Settlement. The singing of the National Anthem brought the meeting to a close.

W. L. ROPER,
Asst. Secretary.

ST. ANDREW : Rock Hall; Red Hills P.O.—Meeting held 29.8.39. Present: Instructor Marr, Mrs. B. Heslop, Secretary; Mr. W. Phillips, 1st Vice-President; and 9 members. Land Settlement Scheme was discussed. Mr. Marr urged members to plant catch crops. A report was given on the visit by members to Grove Place Farm. The President addressed the meeting.

(Mrs.) BERTHA HESLOP,
Secretary.

ST. CATHERINE : Bellas Gate; Bellas Gate P.O.—Meeting held 28.8.39. Present: Mr. G. E. Markland, President; Mr. M. Golding, 1st Vice-President; Mr. D. Shaw, 2nd Vice-President; The Secretary; Asst. Secretary, Instructor Byles, and Headman Rhone. Correspondence was read. The construction of the Blue Hole Road was considered. Provision for the care and use of the ram was discussed. A song was rendered by Miss Blanche Shaw. The Instructor spoke fully on the preparation and marketing of local crops. Authorized Persons gave their reports. The meeting ended with the National Anthem.

(Mrs.) G. M. MARKLAND,
Secretary.

Princessfield : Bog Walk P.O.—Meeting held 28.8.39. Present: Secretary, Mr. P. G. C. Graham; 2nd Vice-President, and a few more members. The Vice-President, Mr. R. H. Graham, and the Secretary encouraged members in their addresses. Road and water supply were discussed. The meeting was brought to a close by the singing of the National Anthem.

P. G. C. GRAHAM,
Secretary.

ST. ELIZABETH : Ginger Hill; Ginger Hill P.O.—Meeting held 15.9.39. Present: Mr. W. W. Benjamin, President; the newly-appointed Instructor, Mr. D. J. Philips, Foreman Scudamore, 10 members, 6 visitors, the Secretary and Asst. Secretary. Mr. Philips was welcomed. He delivered a very interesting address. Minor matters were dealt with. A beneficial meeting was brought to a close by the singing of the National Anthem.

ENOCH E. GORDON,
Asst. Secretary.

Kilmarnock : Newmarket P.O.—Meeting held 7.9.39. Present: Mr. J. E. Monteith, President; Mr. L. E. Scott, Secretary, and 21 members. The Acting Instructor, Mr. Lynch, was also present. Addressing the meeting, he spoke lengthily on the necessity for increased production of foodstuffs. He advised that immediate extensive and intensive agricultural operations be started where lands are available. Among the crops he suggested for planting were: Corn, peas, beans, cassava, cocoes, sweet potatoes, yams and Irish potatoes. The scarcity of land was pointed out. The Secretary was instructed to write again to the Parochial Board reporting on the condition of the Bronte road. Seven new members were enrolled. The meeting adjourned.

L. E. SCOTT
Secretary.

Lacovia : Lacovia P.O.—Meeting held 21.8.39. Through the instrumentality of Mr. Forbes, Mr. C. Lewis, and Instructor Wray, the Branch had been resuscitated. Resolutions were moved and passed—one re the investigation of suitable crops to be grown in the district, and the other re a ticket distributor.

B. A. J. FORBES,
Secretary.

Pepper : Pepper P.O.—Meeting held 16.8.39. Correspondence was read. Instructor Philips gave some helpful suggestions on the care and cultivation of bananas. He gave an address on the rearing of pigs, and stressed the importance of selecting good ones. He gave an interesting reading on indigestion in connection with pigs, which was much appreciated. The meeting was brought to a close by the singing of the National Anthem.

(Mrs.) M. A. ATKINSON,
Secretary.

Pondside : Black River P.O.—Meeting held 5.9.39. Present : Mr. R. A. Bennett, President; Instructor Philips, Messrs. H. I. Francis, T. Samms, E. A. Gayle, the Secretary, Miss Oznie Bennett and two visitors. The Instructor spoke at length on the growing of crops. His discourse contained very useful and practical hints to members. He was thanked for his helpful address. The meeting terminated with the National Anthem.

(Mrs.) E. B. VICKERS,
Secretary.

ST. MARY : Flint River; Troja P.O.—Meeting held 14.9.39. Present : Mr. H. G. Vassel, in the chair; Mr. E. L. Fawcett, Secretary; Mr. Hanson, Supervisor; 10 members and 2 visitors. It was decided to procure a pedigreed boar or ram. Authorized Persons gave their reports. The delegate to the Half-Yearly General Meeting gave a report for which she was thanked. Mr. Hanson encouraged members to plant more foodstuffs. The meeting terminated with the singing of the National Anthem.

(Miss) M. R. DAWKINS,
Asst. Secretary.

Hamilton Mtn. : Oracabessa P.O.—Meeting held 5.10.39. Present : the Instructor; the officers, 24 members and many visitors. Three new members were enrolled. The following matters were dealt with : Land Settlement; extensive growing of crops, Loans to small planters. Appreciation of Mrs. Carmen Pringle's gift of land was recorded. The meeting terminated with the singing of the National Anthem.

K. G. ROBINSON,
Secretary.

ST. THOMAS : Whitehorses; Whitehorses P.O.—Meeting held 22.9.39. Mr. R. J. Kelly presided. Present : 15 members and 25 visitors. The subject of the Rat Extermination Campaign was fully gone into, all members being in favour of the campaign. A resolution was passed recording the sympathy of the Branch for the President, Mr. Dalton who was absent on account of illness. The meeting, which was voted a success, adjourned with "the King."

A. M. RANKINE,
Secretary.

Woburn Lawn : Cedar Valley P.O.—Meeting held 8.9.39. Present : Mr. I. McKoy, President, and a goodly number of members. The following matters were discussed : (i) The formation of a Juvenile Branch; (ii) Water supply for the school. (iii) Function to realize funds for the Branch. Mr. A. Foster, a member, promised to lecture on the cultivation of corn. Roll Call was taken, and the meeting was closed by the singing of "the King."

(Mrs.) I. L. MORRIS,
Secretary.

TRELAWNY : Wakefield; Wakefield P.O.—Meeting held 4.10.39. Present : Mr. E. Wakeland, President; Mrs. C. M. Kelly-Lawson, Island Guide Commissioner; Rev. R. A. L. Knight, 3rd Vice-President; Mr. V. Barrette, Secretary; and Instructor Kelly. The Food Production Campaign was launched after the preliminaries of the meeting had been gone through. Mrs. Kelly-Lawson and Rev. Knight spoke on the subject. Instructor Kelly explained the scheme. Two Authorized Persons gave their reports. The meeting adjourned with the singing of the National Anthem.

(Miss) M. GILCHRIST,
Asst. Secretary.

Waldensia; Sherwood Content P.O.—Meeting held 2.10.39. New Forest Property for purposes of Land Settlement and road matters were discussed. Correspondence re marketing depôts, Food Production, and a Rat Extermination Campaign was read. A committee of ten was formed to lead in the war against rats. Authorized persons' reports were taken. The agenda for the next meeting was fixed and the meeting terminated.

C. C. LEE,
Secretary.

Wilson's Run : Troy P.O.—Meeting held 10.10.39. Present : Instructor Kelly, Mr. G. Coke, 1st Vice-President; 20 members and a few visitors. Matters discussed were : (i) Purchase of a spray-pump and vegetable seeds; (ii) Secretary's letter re

the construction of the Troy-Pantrepant Road; (iii) Resolutions; (iv) Remodelling of Demonstration Plot; (v) Repair of road on school premises; (vi) Marketing Division of the J.A.S.; (vii) Rat Extermination Campaign. National Anthem.

I. L. ROGERS,
Secretary.

WESTMORELAND: New Road; Newmarket P.O.—Meeting held 28.8.39. Special meeting convened to bid Instructor Wray farewell as he had secured a position in the Marketing Department. The President congratulated Mr. Wray on behalf of the branch on his appointment, and for his splendid work and years of service. The Instructor fittingly replied and expressed his appreciation of the remarks. He instructed members to concentrate on the planting of corn. The meeting was closed by the President with prayer.

(Miss) O. J. MILLER,
Secretary.

JUVENILE BRANCHES.

TRELAWNY: Hastings.—Meeting held 3.10.39. Present: the President, Secretary, Teacher, Instructor Kelly, and 32 members. The meeting was opened with prayer by the teacher. The President gave his address of welcome and encouraged Food Production. Arrangements for the Annual Meeting were made. The Instructor gave an address on the subject "Grow More Food." The meeting terminated with the singing of the National Anthem.

DARROT BECKFORD,
Secretary.

OTHER REPORTS RECEIVED.

Branch and Secretary.	Date of Meeting.	Attendance.	Business.
Clarendon— Arthur's Seat (M. A. Davis)	1.9.39	20	Social. Debate. Correspondence. Irish potatoes. Address by the President.
Beckford Kraal (J. A. Sweeney)	2.10.39	13	Reports of Authorised Persons. C.B.A. meeting. Roll Call.
Red Hills (A. E. Mills)	11.9.39	Over 33	Reports of Authorized Persons. Correspondence. Addresses by the President and Instructor. Catch crops.
Sunbury (R. A. Peart)	8.8.39	..	Exhibition. Tree Planting. Road. Roll Call.
Do.	12.9.39	..	School. Road. Routine matters.
Portland— Belvedere (W. T. McKay)	8.9.39	10	Road. Social. Yam Competition. Catch crops. Report of A. P. Enrolment of members.
Rock Hall (F. V. Metcalfe Vaughan)	12.9.39	27	Banana Borer. Praedial larceny. Correspondence. Demonstration Plot. Send-off for Secretary. Report of delegate to Half-yearly General Meeting.
St. Catherine— Morris Hall (T. E. Lawrence)	13.9.39	36	Correspondence. Dispensary. Bridge. Reports of Authorized Persons. Domestic Economy. Concert.
Springfield (S. C. Matthews)	8.8.39	21	Leaf Spot Disease. Reports of Authorized Persons. Report of Agricultural Credit Committee.
Time & Patience (Miss A. M. Boyd)	12.9.39	Over 13	Address by the Instructor. Food Production. Live stock. Report of delegate to the Half-yearly General Meeting. Address by the Manager of the Jamaica Milk Products Ltd. Ram.

OTHER REPORTS RECEIVED, *contd.*

Branch and Secretary.	Date of Meeting.	Attendance.	Business.
<i>St. Elizabeth—</i> Kilmarnock (L. E. Scott)	3.8.39	13	Road. Enrolment of members. Report of A. P.
Nightingale Grove (Miss E. J. Dobson)	1.9.39	21	Food Production. Correspondence. Visit to Grove Place Farm. Loan Bank. Land Settlement.
Do.	27.9.39	Over 36	Welcome to Instructor Philips. War Fund. Address by the Instructor.
Southfield (J. J. Miller)	25.8.39	..	Tomato growing. Irish potato. Tobacco. Death of President. Routine matters.
<i>St. James—</i> Cambridge (J. Gordon Excell)	17.8.39	..	Membership drive. Land Settlement. Routine matters.
<i>St. Mary—</i> Epsom (Fred. A. Edwards)	6.9.39	8	Water supply. Minor matters.
Do.	4.10.39	Over 50	Food Production. Enrolment of members. Correspondence.
Wallingford (L. A. Henry)	4.10.39	..	Water supply. Food Production.
<i>St. Thomas—</i> Hagley Gap (Astley Henderson)	1.9.39	23	Water supply. Dental clinic. Ticket Distributors.
Pear Tree River (V. Ralph McLaren)	3.7.39	..	Address by Instructor McLaren. Reports of Authorized Persons. Correspondence.
Thornton (N. A. Patterson)	12.9.39	14	Coffee suckers. Water supply. Address by Mr. J. G. Davis. Roll call.
Whitehorses (A. M. Rankine)	25.8.39	Over 14	Leaf Spot Disease. Grape culture. Co-operative marketing. Water supply.
<i>Trelawny—</i> Ulster Spring (Miss I. C. Williams)	9.10.39	..	Address by Instructor Kelly. Correspondence. Report of A. P.
<i>Westmoreland—</i> Caledonia (Mrs. I. V. Clarke)	3.10.39	..	Citrus. Dental clinic. Food Production. Roll Call.
Cornwall Mtn. (U. C. Wolfe)	11.8.39	9	Leaf Spot Disease. Address by Instructor Wray. Vegetable growing.
Porter's Mtn. (D. F. Bowen)	18.9.39	15	Food Production. Report of A. P. Road. Land Settlement.

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THE JOURNAL

OF THE

Jamaica Agricultural Society.

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Vol. XLIII.

NOVEMBER, 1939.

No. 11.

BOARD OF MANAGEMENT.

THE regular monthly meeting of the Board of Management of the Jamaica Agricultural Society was held at the offices of the Society 10-12 North Parade, Kingston, on Wednesday, the 4th October, 1939, at 11.30 a.m. There were present: Rev. W. J. Thompson, Second Vice-President, presiding; Mr. U. Theo. McKay, Third Vice-President, Hon. G. A. Jones, C.M.G., Director of Agriculture, (*ex-Officio*), Hon. C. A. Little, Messrs. R. A. Burke, T. J. Cawley, C. O. Cover, H. G. Dunkley, T. P. V. McDaniel, D. D. Phillips, C. L. A. Stuart and W. Harper Watson; Messrs. P. St. L. Bacquie and A. P. Hanson, Supervisors of Instructors and the Secretary, Arthur Thelwell.

Shortly after the meeting began Hon. C. A. Reid and Hon. and Rev. J. W. Maxwell attended.

Apologies for Absence.

Apologies for absence were submitted on behalf of Hons. M. H. Segré and A. B. Lowe.

Confirmation of Minutes of the previous Meeting.

The Minutes of the previous meeting having been sent to members, they were taken as read, and on the motion of Mr. Phillips seconded by the Chairman, were confirmed.

At the request of the Secretary who said that Mr. Howe had been specially asked to attend the meeting to deal with the subject, the following item was taken:—

4 H Club.

(a) *Memorandum from Secretary.* The following was submitted:—

Jamaica Agricultural Society,
11 North Parade, Kingston.
8th August, 1939.

TO THE BOARD OF MANAGEMENT :

MEMORANDUM.

We should set ourselves to develop and extend the scope of the work of the Jamaica Agricultural Society and a first aim should be the increase of membership to at least 50,000.

2. The inveiglement of adult members into joining Branch Societies as a policy for increasing membership has not been successful, and, although it should not be abandoned, it cannot be relied upon as the main policy.

3. In order to extend our work and secure this increased membership, we should

act ourselves to do some entirely new and specific work. The development of the Juvenile Movement suggests itself. The Movement has grown rapidly and is capable of extensive development. At the present time we have 74 Branches and this number should be increased until we have at least one Branch in each district.

The whole Movement should then be re-organized and the work improved and extended. For instance, it is suggested that the name of these Branches be altered and the work developed along Club lines. In this way the younger members of country communities would be trained to love the land, to be efficient agriculturists, to take an interest in their own development along agricultural and social lines, and eventually to be drafted into the membership of the Society and developed into good citizens.

The results attained by the work of adult Branches in a smaller way would appear to justify the hope that a larger movement would meet with similar success.

4. The scheme requires money to operate it. Primarily, funds must be found for the training and employment of personnel, and it appears to be feasible to ask Government for a special annual subvention of £1,000 for the work. It is high time, however, that the Society endeavoured to make some financial contribution of its own to work of this nature.

It is suggested that we endeavour to raise a substantial sum of money to be invested and the interest used specifically for the work. To endeavour to do this, I propose the following:

i.	Amend the rules for members so as to create Life Members and endeavour to secure 1,000 of these @ £5 each, say	... £5,000
ii.	Solicit donations from say 10 persons and Companies, asking them for the sum of at least £500 each, say	... 5,000
iii.	Ask the present Direct Members to contribute the sum of £1 each, say 600 @ £1,	... 600
iv.	Ask each Branch to contribute £2, say 400 Branches @ £2	... 800
v.	Ask Government to contribute an extra Subvention from General Revenue of	... 5,000
vi.	Endeavour to secure from the Colonial Development Fund, say the sum of	... 15,000
TOTAL		... £31,400

NOTE: With regard to i., this will need a special campaign and personal contact. £5 is the lowest sum that should be asked for, but some Life Members might be willing to donate a larger sum.

5. The scheme will need the backing of the Board of Management and the Society generally, and should be launched after the details have been submitted to and approved by the Branch Societies and Direct Members.

6. I have discussed the question of the Club work with Mr. J. W. Howe, Headmaster, Jamaica School of Agriculture, who has had experience in this form of extension work in America and Canada, and he is willing to attend a meeting of the Board of Management and lead a discussion on the subject.

7. I shall be pleased to have your observations on the scheme.

(Sgd.) ARTHUR THELWELL,
Secretary.
8.8.39.

The Secretary said copies of the Memorandum had been forwarded to members of the Board during August, but since then conditions had been considerably altered. The activities of the Society among Juveniles had been very useful but there were not enough Juvenile centres. The Director of Agriculture had advised him to get in touch with Mr. Howe with regard to the 4 H Clubs which were doing excellent work in Canada and the United States as it was felt that the scheme might be adapted to the needs of Jamaica. He thought it might be an opportune time to launch the scheme as the Field Staff of the Society was being strengthened for Food Production work and it might be possible to work in some juvenile activities.

The Chairman then asked Mr. Howe to speak.

Remarks by Mr. Howe.

Mr. Howe said he had done a considerable amount of work in connection with the 4 H Clubs in Canada. He outlined the aims and objects

of the Clubs, their mode of operation and he also mentioned some outstanding results obtained by members of these Clubs.

He answered questions which members of the Board asked, and promised to supply certain data re machines used for canning operations.

(Speech published *in extenso* on page 488 of the Journal for last month (October.))

The Chairman said the talk had been very interesting and the scheme which Mr. Howe had sketched seemed quite workable and he proposed that a Committee be appointed to examine the pros and cons and work out details.

The Chairman then asked the Director of Agriculture to express his views on the subject.

The Director of Agriculture said that the general trend of thought was that it would be more useful to expend effort in the training of the youths rather than in trying to change the well fixed ideas of mature individuals. He had been impressed with the work of the Society among the juvenile population and if the Juvenile Branches could be developed and used along the lines shewn it would greatly further the work which the Society had been organizing. What was required, he said, was something a little more definite and he felt that if a well-considered scheme was prepared there was no reason why Government should not be approached to see if an additional grant could be obtained for furthering this project. It would be necessary to get responsible individuals in the various districts prepared to give the time necessary for organizing the work. It would be useful for the young men and women when they left school to undertake definite projects. The scheme as set out was well worth consideration. The principles outlined by Mr. Howe could be adjusted to suit the conditions which existed in Jamaica which in some particulars were vastly different to those in other countries. It could not be denied that the children here needed this guidance and results achieved by children of other lands could certainly be achieved by the children of Jamaica. He was aware that individuals, Mr. Dunkley and Mr. Stuart for example, who had demonstrated their keen interest in this kind of work, would be willing to co-operate but it would be necessary for many others to volunteer.

He thought it would be well to appoint a Committee to consider the question.

Mr. Dunkley said the change of name from Juvenile Branches to 4 H Clubs might be the means of infusing enthusiasm which had been lacking in the juvenile movement of the Jamaica Agricultural Society which to him was most surprising. It was quite apparent that if the future generation were to be better and more useful citizens the efforts and experiences of the present generation should be passed on to the younger people, and so the movement required much stronger support. With regard to the financing of any workable scheme he was confident that there were many individuals who if approached from the right angle and were aware that the movement had the support of Government would be willing to give it their support. He mentioned further the existence of the Jamaica Welfare which organization he felt would throw in their lot whole heartedly with the Society in such a scheme and he felt that there would be no lack of good volunteer leaders for such a service. He said that the appointment of a Committee would be a good beginning but such a Committee should endeavour to arrive at a working scheme immediately and make a big drive at the moment which seemed opportune. He was very interested in Mr. Howe's talk

and he could assure them that in Clarendon the scheme would be welcomed and its principles adopted.

Mr. McDaniel said a scheme of the kind should have the fullest support as he felt that competition was a great impetus for improved activities. He agreed with the idea of appointing a Committee and promised his personal support.

Mr. Little expressed the opinion that it would be wiser to pay leaders to be in charge of the Clubs than to depend on volunteer work.

The Chairman said such details should be worked out by the Committee and named the following to be the Committee, three to form a quorum.

The three Vice-Presidents, Hon. and Rev. J. W. Maxwell, Messrs. Dunkley, Stuart, McDaniel with Messrs. W. J. Howe, O. P. Martin and W. A. James to be co-opted.

This was agreed to.

The Secretary was directed to submit the Memorandum prepared by him to the Committee.

Mr. Cover said in organizing such a scheme an endeavour should be made not to clash with the work of other institutions or organizations in this direction.

The Chairman on behalf of the Board expressed cordial thanks to Mr. Howe for his talk.

Mr. Howe made his acknowledgements, and retired from the meeting.

Matters arising out of the Minutes.

(a) *Nutrition Campaign—Memorandum.* Memorandum prepared by the Secretary was submitted. Consideration of this was deferred to the next regular meeting of the Board.

(b) *Pensions.* Due to the absence of the First Vice-President who had been requested to prepare a scheme for consideration of the Board and for submission to Government, this matter was deferred to the next regular meeting of the Board.

Instructors and Food Production. Mr. Stuart said as arising out of the Minutes he would like to refer to the question of Food Production as it affected the work of the Instructors. It would be wise, he said, that while registration was being undertaken, food production should also be furthered. Some individuals had got the impression that the Instructors had been seconded entirely for Food Production work and could therefore not be expected to advise on any other agricultural matters at all. He gave an instance of such a case.

This matter was discussed, and the policy originally decided on was outlined, that is, that Instructors should undertake primarily the work asked for by the Food Production Board, at present involving registration of growers, but it was not intended that they should altogether abandon their regular duties which they should endeavour to continue to execute as much as possible in conjunction with the work required to make the food production campaign a success.

Mr. Cawley said he did not fear over production of foodstuffs and asked what was the exact value of registration.

The Director of Agriculture said that the Food Production Board had considered the question of the production of all the recognised crops. There were those such as corn, rice, peas and beans, yams, etc., where they did not anticipate over production. When a grower undertook the production of quantities of these crops and so indicated on the registration form provided for the purpose, he was automatically guaranteed by Government, that is, if he was unable to dispose of all

or any portion of his produce on the open market it would be taken care of by Government. Then there were other crops for instance, Irish potatoes and Sweet potatoes; the quantities of each of such crops which Government would guarantee would have to be specifically authorised and growers would be advised to produce under registration and not plant *ad lib.* In all cases guarantees were given at minimum prices. This Mr. Jones said, was intended to eliminate the possibility of an unbalanced production of the different kinds of foodstuffs.

The Chairman thanked Mr. Jones for clarifying the matter.

Resolutions.

(a) *Mr. McKay re salaries of Office and Field Staff.* Mr. McKay withdrew the Resolution.

Communications.

(a) *Letter from Food Production Board re appreciation of co-operation.* The following was submitted and noted:—

September 23, 1939.

I am directed to convey the appreciation of the Food Production Board to the members of the Board of Management of the Jamaica Agricultural Society in regard to their action in permitting their staff of Instructors being used primarily in connection with increased work on food production, and in placing its organization at the disposal of the Board for operation in every phase of the work.

(Sgd.) H. H. CROUCHER,
Secretary, Food Production Board.

(b) *Application from St. Andrew Land Settlement Committee for use of Board Room.* The Secretary stated that the request was for the use of the Society's Board Room on the second Wednesday of each month.

The Secretary was directed to reply that the Board was agreeable to this provided the meetings did not clash with the meetings of the Society or the meetings of other Boards and Committees which were previously permitted the use of the Board Room.

(c) *Letter from C.S.O. re roads in Land Settlements.* The Secretary stated that in accordance with the direction of the Board at a previous meeting he had asked that Government's policy in connection with roads in Land Settlements be intimated for the information of Branches which had submitted resolutions on this subject. In reply he had received the following letter:—

No. 6664/34

25th August, 1939.

With reference to your letter C.S.O. No. 34 of the 13th July 1939, in regard to roads in Land Settlements, I am directed to inform you that Parochial Boards are responsible for the maintenance of roads of parochial standard and bridle tracks which may be constructed through Land Settlements and that the Government is not prepared to consider taking over any of these roads unless they carry sufficient traffic and otherwise conform to Main Road standard.

2. Any requests for taking over of such roads by Government should be forwarded through the Parochial Board of the Parish.

(Sgd.) F. L. Brown,
for Colonial Secretary.

Report from Committee.

(a) *Instructors.* Reports from a Special Meeting and the Regular Meeting of the Instructors Committee were submitted for the information of the Board as follows:—

3rd October, 1939.

TO THE BOARD OF MANAGEMENT.

A Special Meeting of the Instructors Committee was held on Tuesday, 19th September, 1939.

1. The Committee agreed that the Field Staff should devote their time primarily to the Food Production Campaign. This decision was previously taken by the Board of Management.

2. It was decided to recommend to Government the appointment of one Additional Temporary Supervisor and 17 Temporary Agricultural Instructors to cope with the work of registration and production of food.

3. Mr. G. W. Wray, Instructor for N.W. St. Elizabeth, resigned his position. It was decided to re-employ Mr. H. W. Lynch, on a temporary basis, to operate his old district of S. St. Elizabeth, and to transfer Mr. D. J. Phillips to Mr. Wray's district.

4. In view of the uncertainty of a market, the Committee was unable to recommend field assistance for the tomato project in S. Manchester.

5. Representations from Instructor M. N. Thompson with regard to his grade and emoluments were considered and after full investigation, it was concluded that no injustice had been done to Mr. Thompson.

6. The Committee recommends that Headman Wright be paid a gratuity of £5 to help meet expenses arising out of an accident which was sustained in the performance of his duties.

(Sgd.) G. A. JONES, Chairman.

(Sgd.) ARTHUR THELWELL, Secretary.

4th October, 1939.

TO THE BOARD OF MANAGEMENT.

The Instructors Committee met this morning and report as follows:—

1. That the Government having approved of the recommendations of the Committee for the appointment of one additional Temporary Supervisor and 17 Temporary Agricultural Instructors for Food Production Work, the positions be advertised.

2. That leave of absence has been granted to Instructor L. A. M. B. Coke from 22nd September to 5th October on doctor's certificate.

3. With regard to the question of Instructors leaving their districts at week ends, it was decided that Instructors be advised that except in cases of emergency—(which must be judged by the Secretary), no Instructor shall absent himself from his district without permission being first obtained in writing from the Supervisor or Secretary.

4. That Foreman Black has resigned.

5. Application from the Bampton Branch in Trelawny is recommended for affiliation.

6. After a general discussion on the question of providing offices for the Supervisors and Instructors, a small committee consisting of the Director of Agriculture, the Secretary and Mr. C. O. Cover was appointed to go into the matter and report to the Committee.

(Sgd.) G. A. JONES, Chairman.

(Sgd.) ARTHUR THELWELL, Secretary.

In reply to a query from Mr. Phillips as to the progress of the Rat Extermination Campaign, the Secretary stated that progress was being made, but there were many difficulties. It was hoped however, that the campaign would be launched during the present month, October. Investigations of different poisons had been instituted, and a satisfactory one had been selected. Contributions from a few Parochial Boards had been received. A number of property owners, merchants, planters, wharf owners, etc., had been contacted and had made contributions. The unsettled condition of shipping was also contributing delay in the operations. In the meantime appointments of bait-distributing agents were being made.

Mr. Stuart said that with regard to the amounts voted by the Parochial Boards lapsing, the Boards should be requested to get the permission of Government to pay these sums originally voted.

Diseases of Plants and Animals: Insect Pests.

(a) *Panama Disease of Bananas—Reports for May and June.* These were submitted, and the Secretary was directed to forward copies to members as usual.

Office.

(a) *Application from Miss Robertson for one month's leave November,* and (b) *Application from Miss Hanson for one month—December,* were both granted.

Resolutions from Branches.

The following were dealt with and the Secretary directed regarding them:—

- (a) *Hagley Gap re (i) Dental Clinic. (ii) Water Supply.*
- (b) *Nightingale Grove re Land Settlement.*
- (c) *Mizpah re Juvenile Branches.*
- (d) *Islington re Railways for culverts on Islington-Albany main road.*
- (e) *Ritchies re Sunday trade in Bananas.*

With regard to (c) Mizpah re Juvenile Branches, the Secretary was directed to convey the congratulations of the Board to the Branch for its efforts in respect of the Juvenile movement.

The Resolution from the Ritchies Branch re Banana trade on Sunday was discussed and it was decided that the Board could not take up the matter at the present time.

New Members.

On the motion of Mr. McKay seconded by Mr. Cawley the following were elected to the membership of the Society:—

- J. Cuthill, Jamaica Sugar Estates, Ltd., Golden Grove.
- M. L. McLean, Western Potosi, Bath.
- B. Sowerby, Baron Hill, Jackson Town.
- Wm. N. Orrett, Mt. Pelier & Vinery, Buff Bay.
- E. M. Nethersole, 47 James St., Kingston.
- Mrs. C. P. Bartlett, 152 Constant Spring Road, Constant Spring.
- G. F. Brown, Kellits.
- Capt. I. G. Wakely, Rocky View, Stony Hill.

Other Business.

(a) *Clarendon Juvenile Show.* The Secretary stated that a request had been made that the date Easter Monday, 1940, be approved for the holding of this Show. He further stated that on behalf of the Board he had promised certain prizes for this Show, but a statement of the requirements would be submitted in due course.

(b) *Application from Rev. H. S. Ward for seeds and plants for drought stricken area, Islington, St. Mary.* A letter asking for a supply of planting material and seeds for the Islington districts was submitted from the Rev. H. S. Ward.

The Board, though in sympathy with the situation, was unable to make a grant for seeds as no funds were available for this purpose. The Secretary was however directed to exploit other avenues of assistance.

The Secretary stated that he had forwarded a supply of potato slips. He had also advised the Labour Department of the conditions as reported by Mr. Ward.

This was approved.

The meeting then adjourned to Wednesday the 1st November, 1939, at 11.30 a.m.

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SWEET ORANGE COMPETITION.

ATENTION is called to the Rules and Regulations published in the Journal for September for the Sweet Orange Competition. Reprints of these rules are now available and all persons who intend to enter their orange trees should make application to the Secretary for these reprints as well as for forms of entries.

The history of this matter dates back to a Half-Yearly meeting proposing that the many varieties of local oranges be investigated with a view to finding a local orange to be called the Jamaica Orange and to be propagated generally.

Steps have been taken to make sure that buds from the winning variety will be available to all growers for general propagation.

The conditions have been carefully considered and worked out by a Special Committee and it is hoped that the Competition will be popular. The dates fixed are April to May and August to September, 1940, and the Competition has been extended to include an early orange and a late orange.

LOANS.

NUMEROUS letters with regard to loans have been received by the Parent Society since the launching of the Food Production Campaign and since growers have been hit by the storm.

In some quarters there is a complete misunderstanding with regard to loans.

Some persons seem to feel that money for Food Production and for the repair of Storm Damage will be dished out to everyone who takes the trouble to ask for it. This, of course, is not the case. Arrangements have been made to place existing Loan Banks in a position to make proper business-like loans to deserving growers.

Many persons are chary of approaching Loan Bank Secretaries because in the past these Banks have had of necessity to carry on their business very strictly and would not grant loans except on water-tight security.

Loan Banks have now made arrangements, however, to widen their scope and assist with loans on security other than real property. There should, therefore, be no diffidence in approaching Secretaries of Loan Banks for small loans.

This opportunity is taken to remind borrowers that they must not secure loans other than for use for something reproductive. *Whatever money is borrowed should be spent on some form of cultivation or live stock.* Most growers who land in difficulties with loans are those who, when they borrowed money, used only a portion of it for cultivation and the balance for personal needs.

The Society is warning borrowers against doing this.

It is recognized that some districts are not served by Loan Banks and every effort is being made to form banks in these districts as quickly as possible.

It is desirable that as large numbers of growers as possible should make use of Loan Banks so that the Banks might prosper. The best way to help Banks to succeed is to arrange to pay as quickly as possible the Interest and Sinking Fund on each loan, securing another loan for a further project if this becomes necessary.

A list of existing Loan Banks and their Secretaries is published in this issue of the Journal.

HOW TO FORM A LOAN BANK.

By E. L. Jack.

CONSIDERABLE interest in Loan Banks is being evinced at the present time. This is not surprising for the honest, hardworking small farmer is coming more and more to realise that borrowed money, wisely used, can assist in the development of his cultivation and the general improvement of his holding. The term of the loan depends very largely on the purpose for which the money is required, and the rate of interest at nearly all Banks is 6% on landed security provided the interest is paid within 30 days of the due date.

There are however several districts which are not served, or only inadequately served, by existing Loan Banks, and the purpose of this article is to set out very briefly the steps which should be taken to establish Loan Banks in such areas. ..

As will be appreciated a Loan Bank can succeed only where there is a considerable small farmer class. Given this and a sufficient number of outstanding personalities who enjoy the respect and confidence of the districts to be served and are willing to assist in the management of the Bank, there is no reason why steps should not be taken to form a Bank.

Many of the most successful Loan Banks in Jamaica have been godfathered by Clergymen, Teachers, and small farmers. Very often this has meant a considerable amount of voluntary work, as the Secretary is the only paid officer of the Bank, but this has all been cheerfully and willingly undertaken for the good of the community. These gentlemen have persevered in their efforts to provide credit facilities for the small farmer despite misunderstanding and misrepresentation.

The first step then in forming a Loan Bank in an area in which the need exists would appear to be to secure the right management. If this is not done, the Bank is doomed to failure.

A meeting of interested persons should then be summoned by those who are taking the lead in this matter. This meeting should be carefully worked up to ensure a large and representative gathering drawn from all the districts which it is proposed that the new Bank should serve.

The Agricultural Loan Societies Board, which supervises all the Loan Banks in the Island, has repeatedly advised against Banks attempting to serve too large an area, as experience has shown how difficult it is to do this effectively. This should be borne in mind when consideration is being given by the Promoters of the new Bank to the area which it is proposed to serve.

The Agricultural Instructor should be invited to attend this first meeting and his help and advice will be invaluable in view of the intimate knowledge of the parish which he possesses.

No attempt should be made at this stage to form the Bank, but a frank discussion should take place on Loan Banks and the need for credit facilities for the small farmers in the area. Questions should be invited and criticism faced honestly.

If for any reason the matter has not been sufficiently discussed at this first meeting, or if owing to weather conditions the attendance was not as large as was expected, a further meeting should be held at an early date to give further consideration to the matter.

If the need for some organization to make loans to small farmers is admitted, then the Agricultural Loan Societies Board should be communicated with preferably through the Society by a letter to the Secretary of the Parent Body, and asked to send a representative to discuss with those interested the proposal for establishing a Bank in the area. The Jamaica Agricultural Society is always willing to forward such requests and to give any advice and help in the matter.

On their visit to a district for the purpose of assisting in the formation of a Loan Bank, the officers of the Agricultural Loan Societies Board will not only explain the Rules under which these Banks operate, but will answer questions and criticisms, and will emphasize both the privileges and responsibilities of membership.

There is a statutory form of application to register a Society and this will be supplied by the Agricultural Loan Societies Board if it is decided to establish a Bank in the area. The application to register together with two copies of the Rules each marked "A" and signed by seven members and the Secretary should be forwarded to the Registrar General. (The Stamp Duty on the application is 2/-, and this should also be forwarded to the Registrar General). All alterations in the Rules must be initialled by the Secretary and the seven members signing the application.

The Agricultural Loan Societies Board supplies all necessary Books of Account and Forms free of charge. Rule Books and Pass Books can be obtained from the Herald Ltd., Church Street, Kingston.

Both the Secretary of the Jamaica Agricultural Society and the Secretary of the Agricultural Loan Societies Board will gladly supply any further information which may be required.

SUB-OFFICERS OF THE SOCIETY.

AT

Montego Bay and Mandeville.

ARRANGEMENTS have been made for opening offices of the Society at Montego Bay and Mandeville.

Mr. Hastings, the new Supervisor, will have his headquarters at the offices in Montego Bay, upstairs Barclay's Bank, while Mr. Bacquie will have his offices on the Square at Mandeville, in the premises formerly occupied by Messrs. G. Sewell & Co.

Seeds, chemicals and equipment will be sold at these offices and the Supervisors and Instructors will be available there for interviews and advice.

This is regarded as a very desirable step forward in the organisation of the Society. Soon it is hoped to establish an office in the Eastern section of the Island for the Supervisor of that area.

Offices for all Instructors are being considered by a Committee of the Board.

Termites commonly eat their dead; also they have a habit of grooming each other, and these habits make it possible to poison them.

TERMITES AS ENEMIES OF MAN IN JAMAICA.

Passages from a series of Lectures on Termites and their Control delivered by—

W. H. EDWARDS, D.I.C., F.R.E.S., Govt. Entomologist.

IN Jamaica as elsewhere people are always afraid of, and consequently become interested in, "new pests," but the belief that indigenous and common species of insects are unlikely to cause more damage than they have done up to now gives a false sense of security which in the case of termites will lead to disastrous consequences.

In connection with their own properties most people have had frequent opportunities to assess how destructive termites can be, but as no one wants to proclaim publicly that his building is damaged, very few are those who can realise how heavy is the tribute which those pests levy on the whole community.

Though it is true that termites *as insects* are not new to Jamaica, conditions which are eminently favourable to the multiplication and spread of the more destructive species, have been gradually created, and the consequence is that under present conditions termites can be considered as *new pests* which, unless special measures are taken to cope with the situation which has developed, will continue to increase rapidly in numbers and cause unprecedented damages.

It is unfortunate that most people think of termites as if they were all of one kind. There are in fact many species; the majority of those found under natural conditions live on decaying vegetable matter and do not attack dry and well seasoned wood; some species however which have more ubiquitous habits have established themselves where man has accumulated structural timber and are very destructive to buildings.

Not able to differentiate between the various species of termites we have in Jamaica, people whilst attempting to save their property from destruction often attach great importance to the control of relatively harmless species which build conspicuous nests on trees, on fence posts, etc., and leave untreated the breeding grounds of the more destructive species which have no sightly nests and whose colonies are in the soil or within the lumber being destroyed.

Contrary to most other insects which man has to combat, termites hardly affect man living under primitive conditions but have become pests of major economic importance since large towns and villages have been built in the tropics.

Under natural conditions the species which live on decaying wood and vegetable debris predominate, whilst those which live on seasoned and dry lumber are rare.

In small villages or in the isolated houses generally built of hardwoods of the first settlers, the pests did not find favourable conditions to multiply. It is only since extensive towns have been built that the species of termites which attack structural lumber and manufactures products of all descriptions have found their promised land and have colonised them. As no measures have been taken to control those pests, many of the older parts of Kingston are now infested to such a degree that they can be described as enormous termittaries. (As an example, the lecturer described conditions in Smith Village and showed on the screen a series of photographs showing how every building existing there is riddled by termites).



A street in Smith Village, similar to most other streets in the poorer districts of Kingston. Note.—Fences made with pieces of boards from barrels and packing-cases and low grade timber extremely attractive to termites.



A yard in Smith Village—the Home of Termites.

It seems that conditions which lead to slum formation in the tropics have not been sufficiently studied. If things are allowed to drift, the poorer districts of Kingston will fall to slum standard as the damage being done there by termites makes it almost impossible for the inhabitants to keep their houses in proper condition.

Measures should also be taken to prevent the new residential areas from becoming so infested. This cannot be achieved by individuals but by means of legislative and other measures which Government only can take

I do not wish to cause anxiety but it cannot be ignored that a very large number of buildings have been structurally weakened and that especially in those with concrete nogged walls, the wooden beams inlaid in the concrete having been destroyed, the superstructure now merely rests on weakened walls by the force of gravity.

Under such conditions the results of an earthquake or of a hurricane of medium force may easily become catastrophic.

The person who owns large buildings in Jamaica, pays directly and indirectly, a heavy tribute to termites. Those who try to reduce expenses for the upkeep of buildings and *loses* through depreciation by employing building materials which are reputed less destructible than wood, have to spend more for the initial outlay, such materials being more expensive than wood whilst they present other disadvantages of their own.

When stone, concrete or metal is the type of material employed, the building itself is not damaged, but it happens frequently that articles kept therein, furniture, etc., are damaged. Though concrete, metal and manufactured building materials are now largely employed in buildings constructed for Government as well as for the more important concerns, we find that they cost considerable sums of money as a result of the activities of termites.

Building materials which are not easily destroyed are beyond the means of the majority of people. In Jamaica the poorer people, particularly those living in the towns, are those who suffer most because their houses, badly constructed on grounds already heavily infested by soil-inhabiting termites, are situated so near to each other that the 'dry wood species' also spread easily and infest all such constructions as soon as they are erected.

Recurrent expenditure necessitated by repairs and rapid deterioration of houses in residential areas of Kingston and St. Andrew are matters so well known to every house owner that I need not comment further thereon.

In the poorer urban districts the situation is so distressing that I advise you to go and see things for yourselves.

Most people are interested in slum clearance and rehousing schemes and we find that many suggestions are offered and ambitious plans made. It would seem however that some of the principal causes which lead to the formation of slums, and the main factors in the housing problem which affect the majority of the population of the urban areas of the tropics, have not been considered.

Any person with a normal intellect, knows that however desirable it is to house his family comfortably the size of the house he can buy does not depend entirely on the amount of capital he can invest but also on what it will cost him periodically to keep his house in a proper state of repairs: with termites this becomes a very difficult and expensive task. People who have to repair their houses extensively

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and at short intervals are thus materially in the impossible situation of building large houses or to spend on extensions, however the need for better accommodation may be felt.

It is well known that many people have taken advantage of credit facilities and of deferred payment systems to buy houses; it is perhaps less known that in a large number of cases they have not been able to keep their obligations because they came to realise that they would have to face periodically heavy expenses on repairs, or that depreciation would be so rapid that it was better from a financial point of view to lose the instalments they had already paid than to get more deeply involved.

Anyone who knows Jamaica realises that one of the solid qualities of the Jamaican is evidenced by his love for his cultivations and for his house; his attachments to his plot of land and to his district is as strong as that of the legendary French peasant.

We are not here to philosophize; it is incontrovertible that individual happiness depends largely on domestic interests and that political welfare and stability of a community depends on the sense that individuals may have that they own a share in the palpable wealth of the country, i.e., in lands and buildings. It is good and in the interest of everyone that every citizen should own a house and a piece of land however small they may be. Realising how legitimate such aspirations are, Government facilitates purchase of houses by its employees and you are well informed about its land settlement schemes.

You will however have noticed that a large number of people, belonging chiefly to the middle classes, who used to like to own the houses in which they live are now renting houses in increasing numbers. The explanations one hears expressed about this is that it is a better financial proposition to rent a house than to own it because with modern buildings, cost of repairs and depreciations are very heavy and because annoyance, resulting from the necessity of having repairs constantly made by unskilled workmen, outweighs the pleasure one could otherwise derive; this is a matter of individual appreciation which we shall not discuss.

The facts that should retain our attention are that rapid depreciation, heavy cost of repairs and the difficulty of obtaining trained workmen to repair the work of destruction carried out by termites jeopardize the aim of Government who desires to see as many people as possible happily settled on the land and owning the houses in which they live.

During recent years, houses built not to be occupied by the owners but to be rented during a short time and then sold within 3 or 4 years have sprung up in St. Andrew like mushrooms after rain. Those buildings are generally constructed on a pretentious scale with every structural detail intended for spectacular effects whilst the materials of inferior quality and very perishable. The methods of construction now adopted are similar to those which have been devised to erect structures for momentary use such as in fairs, etc.

Whilst new, such buildings are generally let at a very good rental to people who have lost the desire to own real property, after a few years these houses are sold to people who judge only appearances and want to satisfy their ambition to possess a house which to them looks very attractive. Unlike the seller, the purchaser does not then realise that the time is near when extensive repairs will become necessary.



This photograph shows conditions of foundations and also method of repairs generally practised in the slum areas. The board stencil-marked 'N.C.S. and Co.' originates from a packing case (low grade lumber very attractive to termites). Such pieces of wood are simply affixed over termite-eaten boards to close the larger holes.

You will agree with me that all this reveals an unhealthy situation and that the time has come when conditions which are bound to affect very seriously the welfare of this community should be remedied.

As we shall explain in detail later this should be done:

- (1) by revising the building codes which at present are incoherent and incomplete;
- (2) by controlling importation, methods of storage, and sale of lumber in the colony;
- (3) by giving to those who have buildings constructed the possibility of controlling the quality of the building materials provided by their contractors.

We shall now refer briefly to the slums of Kingston. As you are aware, attempts are being made to improve conditions and it would be better not to describe them here.

Realising that the aim of Government would be frustrated if the dwellings existing in those areas were repaired or rebuilt without eradicating termites which are the main cause that made those houses fall into such a state of disrepair, I submitted to Government observations on this matter and asked that the Central Housing Authority would take advice on the subject. Its Secretary has appreciated in time the necessity of taking steps to prevent rapid infestation of the new buildings being erected at Trench Pen and his keen interest in the matter will undoubtedly have very good effects.

The photographic documents I will now show you were taken during one of the inspections I made in Smith Village; they depict average conditions existing there.....

UNSTAMPED LETTERS TO THE SOCIETY.

ONCE more attention is drawn to the fact that large numbers of letters are delivered at the Society's Office without original stamp. The Postal Department charges 2d. for each of these letters.

Postage to the Society is not free; all letters must be stamped.

The volume of letters received by the Head Office without stamps has grown to such dimensions that the Office will no longer pay the taxed postage for these letters, and the Postal Department will be asked to return them to the writers. In this way important business might be held up.

Everyone writing to the Society is asked to make sure that his letters are stamped.

PIG SICKNESS.

OUTBREAKS of sickness in pigs are becoming more and more prevalent. Members are therefore warned to take every care when buying pigs.

Enquires should be made as to the health of the pigs in the district and on the farm or holding from which the pigs are being bought. If there has been any report of an outbreak or sickness of any kind, pigs should not be bought from that farm or district.

Make certain that purchases are from clean healthy litters. With a little care and attention to this matter outbreaks in new areas will be prevented and the spread of sickness in areas where it exists, arrested.

GOOD SEEDS—GOOD CROPS.

TOO much stress cannot be laid on the necessity for planting good sound seeds free of Pests and Diseases. Good crops can only come from good seeds.

Time spent waiting for good seeds is not time lost. In his hurry to get his planting done, a cultivator will use the seeds which he has handy whether or not these seeds are good seeds. This is the case especially with Pulse (Peas) and Corn.

If seeds have come from Mosaic-diseased plants the crop will be hampered by this disease and will give poor returns; if seeds have been riddled by weevils, germination will be poor and the crop will be the subject of severe attacks from weevils. Weevils, at the egg stage, may be present in the seeds and yet not be noticed by the naked eye or by the unobservant.

Only seeds which have been carefully selected, treated and stored in insect-free, clean bags should be used. Such seeds are available at the Society's Seeds Department at most reasonable prices.

The cultivator should always bear in mind that good crops can only come from good seeds and so arrange to get the best seeds available well ahead of planting time.

What is said about seeds apply equally to other planting materials. Now that extensive areas are being planted with Potato and Cassava, care should be taken to see that only clean slips and healthy sticks are used.

The diseases common to one area will be readily taken into a new area unless every care is taken with the new supply of sticks and slips. These should, therefore, be only taken from clean, healthy fields, and if there is any doubt whatever they should be dipped in Bordeaux Mixture before use.

It would be excellent practice in fact to dip *all* sticks and slips before planting them.

Care should be exercised in transporting Yam heads from one district to another. Any planting material of this description is capable of carrying and spreading the dreaded Panama Disease, so only clean areas should be selected for getting supplies of Yam heads.

A little precaution taken in the early stages with regard to these matters will save disaster and heartburn later on.

A. T.

DO NOT DESTROY THE ROOTS OF PEAS.

It must be noticed that when peas and beans of any kind are pulled up there are small swellings on the roots.

Each swelling is the home of myriads of bacteria which have the power of feeding on the nitrogen in the soil atmosphere, converting this into valuable plant food.

It will be seen, therefore, that it is a mistake in reaping the pea crop to pull up the whole plant and so destroy these valuable little friends.

A much better way would be to cut off the stems of the peas near the ground, thus leaving the roots with the bacteria in the soil; the bacteria will continue to function for a considerable time.

A. T.

FOOD PRODUCTION.

PAMPHLET NO. 6.

Irish Potatoes (*Solanum Tuberosum*)

THE IRISH POTATO, while essentially a temperate land crop, has been grown commercially with marked success during recent years in the sub-Tropics and Tropics. Incidentally its natural home is the high lands of tropical South America; in these areas it is grown at altitudes of from 8,000 feet upwards, although the varieties found there are not the commercial varieties of Europe and North America.

In Jamaica, Irish potatoes have been grown for quite a number of years, and, as far as can be ascertained, the pioneers concentrated their efforts as nearly as possible in those areas where altitude and climate resemble the conditions of its natural home. During the past few years cultivators in other areas, generally at a lower altitude, have had considerable success with this crop, but it can hardly be said that yields have greatly increased, for there is every evidence that the original pioneers were men of wisdom who were fully acquainted with the natural conditions required by the crop and enjoyed good remuneration from their efforts.

Districts Suitable: The home of the Jamaica Irish Potato is in the Devon area of Manchester, and all of the high land in the Northern part of the parish is ideally suited to the crop. It is on the "brown" soils found in that area that the highest yields are recorded, although good crops are grown on the "red" soils of the Central and Southern parts of the parish. Similarly the heavier clay soils on the Clarendon border will produce large crops in suitable seasons. Altitudes in all of these areas range from 1,200 to 3,000 feet and, generally speaking, the greater the altitude the heavier the yield.

The "red" and "brown" soils of St. Ann also produce good crops of potatoes, especially around Bamboo where again altitude seems to have its favourable effects. Secondary areas where crops have proved profitable are in the higher lands of St. Elizabeth, St. Mary and in the Blue Mountain Range in St. Andrew. A number of experiments have been carried out on the plains, under irrigation, but, although potatoes can be grown, it has not proved a commercial success and it is very doubtful if such plantings will ever be able to compete with crops grown on the lighter soils of the hills.

Seeds: Canada provides the chief source of supply for seed potatoes, while Scotch and Irish Seeds are imported in fair quantity. The chief commercial varieties now grown are Green Mountain and Irish Cobbler from Canada and Up-to-Date from the latter two countries. There are a number of other varieties planted, chief amongst these being Khatadin, Red Bliss, Arran Banner, Arran Consul, Arran Pilot and Epicure, but at best ninety per cent. of the importations are of the three first-named varieties. Once grown local seed from healthy crops has also been planted in Jamaica to a large extent recently and has yielded well and it is quite safe to use such seed at those times of the year when imported seed is not available.

Amongst the imported varieties, Green Mountain leads the way and is a good general purpose potato, a long cropper and heavy yielder,

but rather susceptible to disease. Irish Cobbler is a much quicker cropper, less liable to disease and, given favourable growing conditions can out-yield all of its competitors. It cannot, however, stand the slightest drought conditions and can be regarded as more of a "gambler" variety than Green Mountain. Up-to-Date is an excellent cropper, not particularly susceptible to disease in Jamaica and produces a high quality tuber. It is becoming increasingly popular with growers and is likely in time to replace a good amount of the acreage now planted in Green Mountains.

Of the lesser grown varieties, Arran Banner has proved a heavy cropper with a high percentage of large tubers—a factor of importance on the local market which demands a big potato.

In Manchester, the main crops are planted in February and March, while a secondary planting time is September and October. For the latter crops native seed is used owing to imported seed not being available.

In St. Ann, December and January are favourable planting times, but in those districts where the altitude is over 1,500 feet, March is more suitable. Generally speaking, in most of the secondary areas already mentioned, the crop is sown in from January to March.

Preparation of Land: The land should be well ploughed or forked and "refined" to a good depth about four weeks before planting time, and then allowed to settle so that the soil is not in a too light or "fluffy" condition. Drains should be cut to prevent heavy rains from washing out the crop, and, where it is known that water is likely to stand, precautions should be taken, by drainage, to ensure that this runs off rapidly.

Seed Rate and Manuring: About 100 to 150 pounds of seed potatoes are planted to each square of land, dependent on whether large or small tubers are used. Large "seeds" require cutting, but care should be taken that one good, or two medium, sprouts are to be found on each "set piece." The planting should be made in rows from 2 feet 6 inches to 3 feet apart and the "set pieces" should be from ten to twelve inches in the rows. An application of 5 cwts. of a well balanced fertilizer mixed with an organic base should be applied in a "ribbon" along the rows at the time of planting and well mixed in with the soil. Care should be taken that the fertilizer does not touch the "set" pieces.

After Cultivation: As soon as the potato plants can be seen, the soil should be well stirred between the rows and at all times the crop should be kept clean of weeds. "Earthing" or "moulding up" should be done as soon as the plants are six inches high, but care should be taken that this "moulding up" ceases as soon as the tops get heavy. An old fashioned saying was that "as soon as the tops get as big round as the inside of your hat leave them alone" and this advice still holds good to-day. It must be remembered, however, that early cultivation is very essential, and has a large bearing on the ultimate yield of the crop.

Diseases: Blight is very prevalent on potato crops in Jamaica and spraying with a 4-4-40 Bordeaux Mixture is essential. Other preparations, such as Perenox, have also been used recently with good success. Both "early" and "late" blight will attack the plants, and spraying

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should commence as soon as the crop is six inches high. This should continue as fresh foliage is produced, or the spray is washed off by rain, and even when the plant is full-grown efforts should not relax. The longer a crop can be kept free from disease, the longer the life of the crop, and the higher the yield is likely to be.

Insect pests are not numerous, but infestations of caterpillars occur frequently. These can be controlled by the addition of six to eight pounds of lead arsenate to each 100 gallons of Bordeaux spray.

Harvesting: The tubers should be reaped by carefully digging them from the rows by forks. If the soil is in really good condition they can be pulled up by hand on the lighter lands. Careless reaping and "sticking" of the tubers with the fork result in great loss to the grower, and too much stress cannot be placed on careful handling of the crop at this stage. After sunning for a half hour on the ground the crop should be gathered up into barrels or boxes and taken to a shady place or shed. If the crop is required for home consumption, it should be stored in well ventilated boxes, or on shelves, in a cool, dark shed.

Marketing: The Government Marketing Department now handles practically the whole of the Jamaica crops, and potatoes can be delivered to its country depots at any time. These are then selected and graded and the grower paid at prices which are fixed according to the crop seasons. The crop is then stored and later sold locally or shipped to overseas markets, whichever offers better opportunity. It must, however, be stressed that, to bring a crop to maturity and to obtain the best grades, and consequently prices, great care and attention must be exercised along the lines which have been set out in this pamphlet.

GROW MORE FOOD.

THE Minister of Agriculture sent a special message to the farmers of Great Britain with regard to Food Production. He said in part: "The farmers' main job is to increase in ordinary fashion, our home production of essential foodstuffs—a task just as vital to the Nation as that which is to be carried by our armed forces.

"The majority of farmers—large and small—must think in terms of using up more land, both for the supply of human food and animal. *Get on with the Job.*

"It will take some time, however for Committees to give precise directions, but in the meantime land holders should get on with the job by ploughing up at least 10% of their present grasslands Contributions which those engaged in Agriculture have been called upon to make was never before of such tremendous importance to the Nation.

"Agricultural workers are being called upon to play a most important part—the Government's plans cannot be carried out without their full co-operation. Every worker at present on the land should therefore continue to carry on with the job which is National Service of the highest importance."

The appeal of the Minister of Agriculture to the Agriculturists of Great Britain applies with equal force to the Agriculturists in Jamaica.

THE FIELD STAFF.

FOR a long time it has been known that the number of Instructors employed by the Society has not been sufficient to overtake the work; it was difficult, however, to find the money to employ extra Instructors.

The Food Production Board soon realized that if the work of Food Production was to be efficiently and speedily done, the staff would require strengthening. They therefore got the approval of Government for the employment of one extra Supervisor and seventeen temporary Agricultural Instructors.

Mr. C. C. Hastings, one of our Senior Instructors, has been appointed a Supervisor. Mr. Hastings' headquarters will be at Montego Bay and he will have jurisdiction over the Instructors of the West. Mr. P. St. L. Bacquie, whose headquarters are at Mandeville, will be in charge of the Instructors and the work in the Central Parishes, while Mr. Hanson, at Stony Hill, will be in charge of the work in the Eastern Parishes.

An additional Instructor has been allocated to nearly every original district, so that the areas to be now operated by each Instructor will be considerably reduced in size. This will mean that all districts will be better served, and Instructors will be able to attend Branch meetings more regularly.

It is the hope of the Society that very much more concentrated work will be done, that cultivations will be improved, and that we will have better control of pests and diseases.

A list of the new Instructors and their postal addresses and districts is set out below.

A. T.

NAMES.	DISTRICTS.	ADDRESSES.
1. A. W. Campbell	Mid. & Lower Clarendon	Alley
2. G. F. Gayle	West Westmoreland	Grange Hill
3. L. V. Grey	St. Thomas	Bath
4. R. G. Henriquez	W. St. Ann	Alexandria
5. Austin Jobson	W. St. James	Cambridge
6. E. A. Lawrence	Upper St. Andrew	Guava Ridge, Mavis Bank
7. R. M. Little	E. St. Mary	Scots Hall, Castleton
8. C. G. Llewelyn	Mid. St. Elizabeth	Iacovia
9. O. R. McDaniel	E. St. Ann	Pedro
10. H. B. McKay	West Trelawny	Good Hope, Falmouth
11. E. U. McNamee	East Hanover	Great Valley
12. L. A. McNichol	West Hanover	Riverside
13. N. H. Mullings	East Westmoreland	Darliston
14. G. F. Phillips	S. & Cen. Manchester	Bellefield, Williamsfield
15. I. A. Rhone	St. Catherine	Brown's Hall
16. H. A. Rogers	S. & Cen. Manchester	Pratville
17. C. A. Silvera	E. & Cen. Portland	Rural Hill, Long Bay
Temporary Supervisor—	C. C. Hastings	Montego Bay

STORM DAMAGE.

By **A. P. Hanson**, *Supervisor of Agricultural Instructors.*

FOLLOWING the wind and rain storm of November 1—3, the Secretary J.A.S. promptly issued to the farming public advices comprising the reconditioning of damaged cultivations, and the growing of quickly-maturing food crops. Anyone not yet in receipt of the pamphlet "Emergency Measures" should hasten to obtain it.

With the damaged banana fruit trees, provision grounds, etc., so much in evidence, many persons may have lost sight of the damage actually done to the soil on which depends the production of crops.

The writer of this article has since the time of the storm witnessed the Rio Minho, Rio Cobre, Hope, Yallahs, Johnson, Plantain Garden, Rio Grande, Swift, Spanish, Buff Bay, Wag Water and smaller rivers conducting tons of humus and fine, rich soil in the form of thick mud. Much the same observation applies to other streams of the Island. To-day, the date of writing, November 18, the abnormal rains continue to fall incessantly.

The bulk of the damage resulting in the turbid condition of the rivers may be traced to up-country lands that are under cultivation. Tillage had made the surface soil fine, and the plant food had become soluble. When the rain descended, there being no effective provision for controlling the water, it first made drills, then furrows which widened taking in the yam, and potato banks, etc. See the soil creeping, running, racing into gullies, springs, brooks, and rivulets, then into the large streams, all in their turn passing on their rich freight of silt, humus, and fertility, the factors that make plants grow. The cream of the soil is ultimately landed in the sea.

It is not only the soils of our provision grounds that are now impoverished, that have become more difficult to work, and will become baked when heated by the sun. All hill-side cultivations in which there was not sufficient and effective contour trenching, contour hedges, contour planting, or terracing, and the directing of the water, are in this storm-damaged condition.

This damage to the soil needs speedy attention if anything like profitable yields are to be expected.

Renewed tillage, liberal application of manure and lime are the shortest way out, not forgetting proper protective measures.

Humus is decayed vegetable matter, and from an agricultural point of view, is the most important constituent of the soil. Mulch, green crop manure, and farm manure are common means of supplying humus to the soil. Grass and bush mulch are usually within reach of all. Twigs, withes, and leaves all bundled together and used as covering for the ground will warm the soil, conserve moisture, keep down weeds, and decompose into humus.

Thickly planted or sown in the forked land, overlook bean, Bengal bean, Velvet bean, or cow pea will grow up quickly, keep down weeds, and when cut down and allowed to wilt and then turned in, add nitrogen and humus to the soil.

Those who have been following the more progressive plan of combining animal husbandry with crop husbandry, will have pen or farm manure to apply.

Other farms than those on the slopes may have lost fertility through the flood rains. Applied fertilizers may have been removed through leaching. In such cases new applications are necessary.

Crops.

Sugar cane in spite of its comparative safety, should be checked up. Fields of cane in low lying places will die outright unless the surplus water is led off. Where the canes break, leaving stubs, these should be cut back to ground level. The stubs when neglected, rot back and kill the root stock. Settlers are unable to manufacture sugar in such weather. The broken canes can be fed to live stock. The younger ones up to 6 and 7 months of age make good plants. Each plant should consist of two joints having three eyes. Cane plants are scarce. Some persons are willing to buy.

Holes in which to plant cane tops, or these "seed pieces" should be 18 inches wide and not less than 12 inches deep. Two plants may be set in each hole. The rows are usually 4 to 5 feet apart, the holes being 4 feet in the row. On sloping lands, open furrows following the contour at intervals of 4 to 5 feet. Plant the cane 3 feet apart in the furrows. Cover with 3 inches of soil especially in this wet weather. In dry time the covering may be as much as 6 inches.

Coconut.

It has happened in the past that such stormy weather as we have lately had was followed by an outbreak of coconut disease. A great deal of broken materials collect in the crown of the trees setting up an insanitary condition later. The fresh scars produced by the tearing away of the green boughs become gateways for disease. The wind sometimes twists the crown so that the boughs in future grow deformed and clustered. Clean out the crown.

To restore the trees, apply Bordeaux Powder mixed at the rate of 8 lbs. powdered blue stone (copper sulphate) in 100 lbs. white lime. Dust a condensed milk tin full around the base of the heart leaf, and in the axil of the boughs. Small quantities may be mixed—2 ozs. powdered blue stone to each condensed milk tin of fine white lime. The workman climbs with a small rope, the end of which he lets down to receive the container holding the powder.

RESUSCITATION OF STORM DAMAGED BANANA FIELDS.

By Agricultural Instructor G. R. Graham.

NOW that the recent high winds have so severely damaged our banana fields, the following hints will be useful in helping to remind planters of some vital points in their attempts to put their fields in order.

All blown down trees should be chopped up as soon as possible after a "blow"; so should trees which have nearly shot and been badly battered, as these will produce very poor fruit if left standing. The trunks of all cut-down trees should be chopped up into lengths of about eighteen inches, then split into halves with the inner surface turned up, which surface should be chopped in a criss-cross manner. Trunks so treated will form a very serviceable mulch over the now exposed surface of the land and thus help to prevent erosion and hardening up of the surface soil. They will also to some extent, keep down weeds, will rot quickly and add valuable vegetable manure to the soil.

The chief benefit from this treatment, however, is the prevention of increased infestation by the Banana Borer. After a very severe

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case of wind damaged bananas, there is generally an alarming increase in the incidence of borer, especially during the following year. This is due entirely to the neglect of growers large and small to take the necessary precaution of chopping up. Trunks of bananas, when left whole in the field to rot, form excellent breeding and hiding places for the pests, which do not fail to take advantage of the accommodation so kindly offered to them to propagate their species and to hide from their natural enemies.

All uprooted banana trees should be dug out and replanted even though a good sturdy follower is left standing. To merely chop up the fallen tree and leave the follower to take its place is bad practice. The follower so left will take a longer time to fruit than if replanted, and will tend to grow out of the ground, producing a weak tree which would be easy prey to the next strongish wind.

Where there are two or more healthy trees in a root or "matt" and one is uprooted, the butt of the uprooted tree should be moved out of the way and the hole thus left filled in with earth by forking around it. In the case of ratoons which are not so old as to need replanting, all old heads in the "matt" should be stumped out with a mattock and the hole thus made filled in by forking. All straggling trees which have grown out of the row should be planted in line, thus helping to straighten up the field.

Where fields are so badly blown as to leave the ground bare and unshaded, cover crops of legumes such as Overlook beans or Cow Peas should immediately be planted so as to protect the exposed surface soil and keep down weeds, thus reducing the expense of this item of cultivation.

If Overlook beans are used they should be cut down when blossoming. The leaves and stems will form excellent mulch and the stumps left in the ground will spring again and give an excellent crop.

This is a good opportunity for replanting old fields that had been kept going too long because they were still producing good fruit although half the heads were out of the ground and most of the roots feeding on air. Trees in this condition take anywhere up to six months longer than they ought to fruit and tend to produce short-fingered fruit even though the grades might be good. They are also easily uprooted by even moderate winds after heavy rains. It is a great mistake and very unprofitable to the planter for him to put off replanting old fields, that being one of the main causes for the high percentage of the Island's loss by rejection of poor fruit. The good planter should so regulate his cultivation as to replant a portion each year, thus keeping his field young and vigorous. Now that Nature has stepped in and done a portion of the work by felling the old trees, the wise planter should do the rest by replanting as much of his old field as possible and so reap some good out of the evil of the recent disaster.

WASPS' NESTS.

The "Smallholder" says that one of their members had great success in treating wasp nests with Derris Dust.

The member reported that he used a small duster, borrowed from a Seedsman, and proceeded in the night to blow the powder on to the wasp nest through the crevice which the wasps used.

He also left some of the Derris powder scattered on a wall near the entrance to the nests. On the following morning he saw only about a dozen wasps leave the nest and they were not very lively. By tea time not one wasp was to be seen.

The treatment was repeated on the following night. Up to one month after the first treatment not a single wasp was to be seen anywhere.

STORM DAMAGE.

Resuscitation of Citrus Trees.

By C. BYLES, Agricultural Instructor.

GROWERS are now convinced that Citrus is one of our greatest storm resisting crops judging from their indifference to the damage done by the recent storm. This damage was not spectacular, and could not be estimated as easily as damage to other crops.

Although a heavy crop of fruit was hanging on the trees, only a small percentage was blown off, but the large percentage of rejections at buying centres are now disclosing that the damage to fruit was much greater than could have been estimated.

The trees themselves however do not disclose any further damage for the present. Experience gained from past storms shows that if immediate steps are not taken to resuscitate Citrus trees, our crop for 1940 will be greatly reduced.

Citrus trees, like other fruit trees, have been badly shaken, their root system disturbed and branches and foliage battered. They are now on their own account spending all their energies repairing this unobserved damage, which will further weaken them and reduce their capacity for producing fruit.

No fruit tree responds more readily to attention than Citrus, therefore any labour expended on a grove will show result in a short time.

Resuscitation work immediately after harvesting the present crop is of vital importance to secure a good crop for 1940. This work should take the following form:

1. Trees should be carefully pruned, and rid of all broken and damaged branches, taking care that every possible branch that can produce fruit is left. Cut surfaces should be covered with tar, or other substances for protection. Trees should be properly groomed, and freed of all lichens and parasites.

2. A general spraying campaign should be carried out to free the trees of all remaining pests.

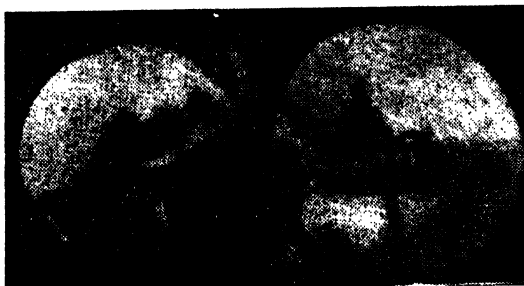
3. Cultivation of the plot should be carried out by light surface forking, taking care that the roots of the trees are not in any way disturbed. In the case of scattered trees, circle forking should be done.

If the trees are spaced far apart, the area between the rows should be planted out with some variety of peas. This will help to recover some of the cost and act as a cover crop during the period of drought which is usually experienced early in the year.

4. Trees should be fertilised, by giving them a generous application of balanced citrus fertiliser which will stimulate the trees, and increase the bearing surface in readiness for fruiting about March to May.

THE TOMATO CATERPILLER.*

THIS caterpillar gouges large holes in the fruit; it is one of our most serious pests of tomatoes. Unless it is controlled, 20 to 30 per cent. of the crop will be lost. The caterpillar is a kind of climbing cutworm and is the larva of a moth about three-quarters of an inch long with a wing of about one and a half inches. It varies in colour considerably but it is usually buff to reddish-brown with indistinct darker markings on the forewings and a black patch on the hind wings. The eggs which are either light yellow or white are laid singly on the young tender foliage of the plant. The incubation period is from 4 to 7 days.



Maize and Tomato Caterpillar on Tomatoes.

The moths are inactive during the day but when disturbed make short jerky flights. Young caterpillars feed upon tender foliage at the tops of plants and then attack the fruit and the blossoms. The full grown caterpillar is about one and a half inches in length and vary greatly in colour. Some are pale green to dark green with little or large black markings; others are pale yellow with brown markings, while others are buff coloured with brownish stripes.

When mature, the caterpillar leaves the fruit and burrowes into the soil where it pupates at a depth of about 4 inches. The pupal stage is about 14 days, but longer in colder weather.

Control.

Control of the caterpillar is best carried out while doing the routine spraying of the tomato crop with Bordeaux. Arsenate of lead powder is added to the Bordeaux sprays and spraying done about every fortnight. About one and a half pounds of the powder is stirred in with 40 gallons of Bordeaux. The Lead Arsenate does not go into solution and so the Bordeaux should be continuously stirred during spraying operations. This is just as effective as actually dusting with Lead Arsenate mixed with ashes. When infestation is severe, however, it is recommended that the plants be liberally dusted with Lead Arsenate mixed with ashes at the rate of one part Lead Arsenate to 5 parts of finely sifted ashes. Each new growth of tomato should be continuously dusted or sprayed. It will be necessary of course for fruit so treated to be wiped or dipped upon picking to rid them of any trace of the spray or dust.

A. T.

*Reference : AGRICULTURAL GAZETTE—N. S. Wales, Vol. L (9).

PEANUTS.

THIS is a crop in which the Society is endeavouring to get all growers interested. It is well-known that nuts of all kinds make excellent food for human beings. Generally speaking, people do not eat half enough nuts. Peanuts are fairly popular and most of what is eaten is imported.

From experimentation it has been found that peanuts will grow well in large sections of Jamaica especially on the lighter, warm soil.

Peanuts is a desirable crop to grow to help keep the land fertile and should be included in the programme of crop rotation for St. Elizabeth, parts of Manchester, coast regions of St. Thomas and the Liguanea Plains.

A clear, simple article on the "Cultivation of Peanuts" was published in the Journal for October, 1939, (Volume XLIII No. 10). Growers are invited to study this article and to make a start by planting at least one small plot of peanuts.

Two varieties have been tried here, and it is decided to stick to the upright varieties because it is very easy to reap and cure. A ready market can be found locally for all the peanuts we can grow. In addition to eating the peanuts as roasted nuts, there are many delicious forms in which it can be prepared for use in the household.

Recipes showing how some of these delicacies can be made are set out below.

The Society is making a strong appeal to planters to try out this crop.

A. T.

PEANUT RECIPES.*

By Mrs. J. W. Howe.

PEANUT AND CARROT LOAF.

1 cup chopped carrots	1½ tablespoon butter or
1 cup coarse ground peanuts	butter substitute
1 cup strained tomatoes	4 eggs, slightly beaten
1 cup crumbs	1 teaspoon chopped parsley
	Salt

Chop separately the carrots and peanuts, or put them through the food-chopper, using the coarse knife. Add the other ingredients and form in a loaf. Place in a well-oiled pan and bake one hour and fifteen minutes in a moderate oven.

This makes a good meat substitute.

COTTAGE-CHEESE AND PEANUT LOAF.

½ cup peanuts	1 tablespoon fat
1 cup cottage cheese	½ teaspoon salt
1 cup cold, cooked rolled oats	Dash of pepper
1 cup milk	1 teaspoon poultry seasoning
1 egg, slightly beaten	Few drops Worcestershire sauce
	1 tablespoon chopped onion.

Chop peanuts and add to other ingredients in order given. When thoroughly combined, place in a well-oiled bread-tin. Bake in a moderate oven until brown. Serve hot with tomato sauce.

This dish offers an excellent meat substitute.

*Reference—The New Butterick Cook Book, published by THE BUTTERICK PUBLISHING COMPANY, Butterick Building, New York

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PEANUT BALLS.

1 tablespoon butter or butter substitute	2 cups cooked rice
2 tablespoons flour	$\frac{1}{4}$ cup ground peanuts
$\frac{1}{2}$ cup milk	1 egg
$\frac{1}{2}$ teaspoon salt	Pepper

Make white sauce from fat, flour, milk and seasoning. Mix rice, peanuts, white sauce and beaten egg, and shape into small balls. Sauté until brown in a well-oiled frying-pan.

This dish is low in both iron and protein, therefore milk, eggs or cheese should appear elsewhere in the menu. These croquettes are good served with cheese sauce.

PEANUT SCRAPPLE.

1 cup hot milk	1 $\frac{1}{4}$ teaspoon salt
1 quart boiling water	$\frac{1}{4}$ teaspoon paprika
1 cup yellow corn-meal	1 $\frac{1}{2}$ cups chopped peanuts
$\frac{3}{4}$ cup corn kernels	$\frac{1}{4}$ to 1 cup grated cheese

Combine hot milk and boiling water, bring to boiling point and add corn meal, corn kernels and seasoning. Stir constantly until the liquid is thickened by the cereal. Place in a double boiler and cook one hour. Ten minutes before taking up, add the peanuts and cheese.

Place in a deep rectangular bread-pan and allow it to cool. When ready to use, cut in small slices (roll in egg and crumb, if desired) and fry in deep fat until brown, or place in a well-oiled baking-pan, sprinkle with grated cheese mixed with bread-crumbs and bake until brown.

This makes an excellent meat substitute.

BAKED PEANUTS.

4 cups shelled raw peanuts	4 tablespoons olive oil
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Cover peanuts with cold water and soak over night. In the morning, place them over the fire and boil ten minutes. Remove from water and dry. Add olive oil and mix well. Place the mixture in a well-oiled baking-dish and bake until thoroughly cooked and well browned.

If extra seasoning is desired, a small quantity of catchup, salt, molasses and mustard may be added during the baking, as for baked beans.

BEAN ROAST.

1 cup well-roasted shelled peanuts	$\frac{1}{4}$ cup milk
2 cups well-seasoned mashed potatoes	1 egg
2 cups cooked broad beans, fresh or canned	1 teaspoon salt
	$\frac{1}{4}$ teaspoon paprika
	1 teaspoon onion-juice

Grind the peanuts, using the finest blade of the food-chopper. In a well-oiled baking-dish place a layer of potatoes, a layer of beans and a layer of peanuts. Continue making layers until all the ingredients are used. Blend milk with well beaten egg and seasoning and pour over the top. Bake in a moderate oven until brown. Serve with brown sauce or tomato sauce.

PEANUT ROAST.

1 tablespoon chopped onion	1 egg
1 tablespoon chopped celery	1 cup bread-crumbs
2 tablespoons fat	1 cup green pea pulp, fresh or canned.
$\frac{1}{2}$ cup hot water	Juice of half a lemon
$1\frac{1}{2}$ cup chopped peanuts	1 teaspoon salt
	Dash of pepper

N.B.—If celery not available, sweet pepper may be substituted.

Cook onion and celery in butter or butter substitute until golden brown. Add hot water and simmer until vegetables are tender. Mix other ingredients, adding the egg last. Combine the mixture with the celery mixture. Pack into well-oiled baking-dish and bake until golden brown. Serve with cream sauce.

PEANUT COOKIES.

$\frac{1}{2}$ cup butter or butter substitute	2 teaspoons baking powder
$\frac{1}{2}$ cup sugar	$\frac{1}{2}$ teaspoon salt
2 eggs	1 tablespoon milk
1 cup flour	1 cup chopped peanuts
	1 teaspoon lemon extract

Cream the butter or butter substitute with the sugar. Add the well-beaten eggs. Sift in the dry ingredients and add the milk, chopped nuts and flavouring, mixing well. Drop by teaspoonfuls on to a greased baking-sheet and place a peanut on top of each. Bake in a moderate oven twelve to fifteen minutes.

PEANUT BRITTLE.

2 cups granulated sugar	1 teaspoon salt
1 pint chopped peanuts	

Put the granulated sugar into an iron frying-pan and heat slowly until the sugar is melted and turns a light brown, or slightly above 300 deg. F., stirring constantly. Have in readiness the finely chopped peanuts, sprinkled with the salt. Place these in a buttered tin, warm slightly and pour over them the melted sugar.

MOLASSES PEANUT CANDY.

1 cup molasses	$\frac{1}{2}$ cup water
$\frac{1}{2}$ cup brown sugar	$\frac{1}{8}$ teaspoon cream of tartar
1 cup shelled peanuts	

Boil together the molasses, sugar, water and cream of tartar to the brittle stage, or 300 deg. F., beat in the peanuts and turn into an oiled pan.

PEANUT STRIPS.

Peanut butter	Egg white
Lemon juice	Chopped peanuts

Roll paste very thin. Place on inverted baking tin. Brush half with peanut butter thinned with lemon juice. Cover with the other half and with a sharp knife mark in strips four inches long and one inch wide. Set in a quick oven. When baked, brush with white of egg diluted with one teaspoon of cold water and sprinkle with finely chopped peanuts. Return to the oven for about three minutes, until the nuts are slightly crisped, then cut apart. These are excellent with coffee or afternoon tea.

Sandwich Fillings.**PEANUT BUTTER AND FRUIT.**

- | | |
|--------------------------------------|---------------------------------|
| $\frac{1}{2}$ cup figs | $\frac{1}{2}$ teaspoon salt |
| $\frac{1}{2}$ cup raisins | $\frac{1}{2}$ cup peanut butter |
| 2 tablespoonfuls light corn
syrup | |

Wash figs and raisins and put through a food chopper. Add salt, peanut butter, lemon juice and corn syrup, and mix well.

PEANUT BUTTER AND ORANGE MARMALADE.

- | | |
|---------------------------------|------------------------------------|
| $\frac{1}{2}$ cup peanut butter | $\frac{1}{2}$ cup orange marmalade |
| $\frac{1}{2}$ cup cream | |

Mix peanut butter with cream or milk until it is smooth and light in colour. Spread generously on thin slices of bread, and add a layer of orange marmalade. The marmalade may be mixed with the peanut butter if preferred.

PEANUT BUTTER AND BANANA.

- | | |
|--------------------------------------|----------------------------------|
| $\frac{1}{2}$ cup peanut butter | $\frac{1}{2}$ cup banana pulp or |
| $\frac{1}{2}$ cup cream or hot water | 2 bananas. |
| Lemon juice. | |

Mix the peanut butter with the cream until smooth and light in colour, then combine with banana pulp and lemon juice, or slice banana over layer of peanut butter on bread.

PEANUT BUTTER AND PICKLE.

- | | |
|----------------------------------|-----------------------------|
| $\frac{1}{2}$ cup peanut butter | $\frac{1}{2}$ cup hot water |
| $\frac{1}{2}$ cup chopped pickle | |

Cream peanut butter and water together and add chopped pickle.

PEANUT BUTTER AND ONION.

- | | |
|------------------------------|--------------------|
| 1 cup peanut butter | 1 small Bermuda or |
| $\frac{1}{2}$ cup mayonnaise | Spanish onion |

Beat peanut butter, add mayonnaise and spread sandwiches. Slice onion in very thin slices and put a layer of these over mixture on bread.

NUTRITION.***Careful Cooking.**

THE two main principles of cooking are first, *simplicity* and second, *appetising serving*.

The meaning of simplicity in this connection is to keep and bring out the natural flavours of the particular food and not to confuse this flavour with so many foreign substances as to make the whole dish of no particular taste. It is a common fault, using so much sauce and seasoning that when the dish has been cooked, it is neither one thing nor the other.

Nature has placed in each food certain delicate flavours and attractive colours; these should be preserved in the food by proper cooking.

Lack of judgment is often seen in the way different foods are mixed together without regard to the effect of the flavour of one food upon the flavour of another food; likewise, in the addition of large quantities of strongly flavoured substances such as onion and thyme to foods of

*Reference : **FOOD AND COOKERY** by H. S. ANDERSON, Dietitian.

delicate flavour. In this way the identity of the food is lost, and the taste is mainly of the seasoning which has been added.

A sprinkle of onion flavour in a soup makes it most palatable, but a little too much will so cover up the flavour of the soup as to make it a disappointment. Cream and tomato combined make a very nice and nourishing soup, for the combination is most agreeable. By the addition of spice, bones from meat, and onion, the tomato flavour would be so overpowered by the stronger flavours of these articles that the soup would be a sort of nondescript, and therefore not in harmony with that simplicity in cookery which should develop and keep delicate flavours in the food, which flavours are so satisfying to the natural taste.

There is very close connection between the colouring matter in vegetable foods and their tastes, so if the colour is lost in the cooking, the taste will also be lost.

In order to preserve the green colour in fresh vegetables, they should be put to cook in boiling water. In this way the cells are sealed up as it were, and the loss of colour as well as the escape of valuable salts in the vegetables are prevented. The water should be kept boiling continuously until the cooking is done. Cold water, when added to fresh vegetables in cooking, takes away both colour and flavour, leaving them insipid to the taste and unattractive to the eye. Exception should of course be made in the case of soups and vegetable stews where the idea is to boil out the flavour into the soup and gravy.

The second factor in successful cooking is to serve the food in an appetising way. One of the first essentials of digestion, therefore of nutrition, is to have the food palatable. No matter how nice the food may be, it must be relished in order to benefit the body.

Meals should appeal to all the senses, and not only to the sense of taste; so that while it is unwise and probably harmful to prepare food in a highly seasoned manner, we should appreciate the need for providing food that please the sense of taste, sight and smell, as these all have a direct bearing upon digestion of the meal.

All those juices which help the digestive processes should begin to flow at the sight of food: they do, when the food is appetising and attractively served.

Simple garnishing such as a sprig of parsley, a friendly flower, contrasting in colour and design, snowy linen and proper dishes, will enhance the pleasure of grown-ups and the children at the family board. Nature has provided a feast for our eyes in flowers and fruits in most attractive designs, shapes and colours. These wonderful tints and hues tempt us to enjoy the delightful flavour of the foods. The same principles should be transferred to the dining table. If foods are badly cooked, over cooked, served with spots or bruises, or showing rough untrimmed surfaces, or in cracked dishes or otherwise out of harmony, they will provide no inducement to eat them, in the first place, and will in the second place be robbed of half of their ability to cater to the needs of the body.

What is more attractive than a dish of vegetables with freshly cooked, blooming green cabbage, snowy white potatoes and ruby red carrots? Compare this with sodden white cabbage, flat spotty potatoes and no carrots at all.

There is the utmost need for sufficient care in the selection, preparation and careful serving of the daily food, with less and careful use of flavourings, sauces and other condiments.

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These disasters coming so quickly one after the other, is bound to have a very adverse effect on our economic life. We have however, in the past faced combinations just as severe and come through on top. Bruised and battered financially, it is true and perhaps with a few more gray hairs—but still on top.

Now once again we must show that dogged, determined spirit of the true Agriculturist and face our present problems with that "never-say-die" spirit and a firm resolve to overcome all obstacles in our path and once again ride on the tide of prosperity.

This is no time to hang our heads and bemoan our fate. We must be up and doing. Let us then get busy restoring those damaged fields if we have not already done so.

The Jamaica Agricultural Society has issued to all members pamphlets with excellent advice on the restoration of damaged fields and showing how use can be made of the now open spaces in banana cultivations, to plant quick-growing food crops such as peas and beans. These crops, besides assisting banana cultivation, will be a valuable source of food supply and food is the one thing we are going to need in the very near future, and need it badly.

Let us then enlist for service on the "Food Production Front," and while restoring our fields, plant all the food crops we can, so helping to win both the war against Hitlerism and our own private war at home against privation and want.

G. R. GRAHAM,
Instructor.

OBITUARY.

WE record with deep regret the passing of Mr. Thomas Kemp who was for a long time a member of this Society.

He served on the Board of Management and at one period held the office of Vice-President. Mr. Kemp was a keen agriculturist and maintained his interest in the activities of the Society until the time of his death.

One of his last gestures was a present to the Society of some colonies of bees.

Mr. Kemp was held in high esteem by all members of the community to every section of which he rendered useful and sympathetic service.

HEADMAN EDIE PASSES ON.

WE regret to record the death of Headman P. A. Edie who served in the parish of St. Andrew, but especially on the Liguanea Plains. The late Headman Edie was a conscientious worker, skilled in his job and rendered most useful service on the Liguanea Plains in budding mangoes and citrus and helping gardeners.

His services will be greatly missed.

PART OF THE DAILY ROUTINE.

By C. L. Stuart, *Assistant Secretary.*

QUITE an important part of each day's work at the Office consists of answering enquiries made either in letters or in the form of personal interviews. Of the latter, while a large number naturally come from people living in and around the Corporate Area, yet members as well as non-members from all over the Island, frequently make use of their business trips to Kingston and call to have their agricultural difficulties straightened out.

All enquiries germane to Agriculture are welcome.

The last two or three months have been a period of much agricultural activity owing in large measure to the fillip given to food production by the exigencies of the war situation. Few there are who have not yet heeded the call to back-yard gardening. Consequently, our advice has been sought in several directions and among the plants that have claimed our attention in interviews, the potato (Irish and sweet), leafy vegetables like cabbage and lettuce, and root crops like turnip and beet may be selected for mention. Their protection from attacks of fungus disease and insect pests has received special consideration. Doubtless the most important lesson that farmers need to learn now-a-days is that these vegetables cannot ordinarily be expected to grow to maturity without being attacked by pests that feed on the plant substance and so render the crops unprofitable. Many are the tales we have heard of cabbage plots, for example, that have escaped as far as the heading stage only to be then destroyed by a swarm of leaf-eating insects. As soon as we begin to think of the preparation of the land for the cabbage, therefore, we should also begin to think of lead arsenate and ashes or Derrisol for the cabbage worm and the poisoned baits for the cutworms and crickets. The important point is that we should not wait until the plants are attacked as we are pretty certain they will be; prevention of the ravages of pests and diseases should have a definite place in our scheme of crop production.

Still on the subject of pests and diseases, we may point out that sometimes a diseased condition of the roots shows itself in the general unhealthy appearance of the plant. The real trouble is in such cases rarely suspected. In order to eliminate within reasonable limits the danger of trouble from the soil, recourse should be had to the use of Cheshunt Mixture—a preparation that deserves to be more widely known than it is at present. It combines fungicidal insecticidal and fertilising properties, and, used to water seed boxes and seed beds prior to sowing seeds, ensures the growth of strong healthy seedlings highly resistant to disease.

Cheshunt Mixture is prepared and sold by the Society at 2/- per lb. but as it is mixed at the rate of one ounce to two gallons of water, its application is not expensive. All the many reports that we have had from people who have tried it, have been entirely satisfactory.

During the period under review, several of the gardens of the Liguanea have received our attention. We have been able to demonstrate the use of Soiltex for indicating whether the soil requires a dressing of lime. The old saying,

“Lime and Lime without manure
Makes both farm and farmer poor.”

is very true and certainly points to the value of a handy method of ascertaining the condition of the soil relative to this very important substance. Though not as useful as a chemical analysis, the Soiltext test is good enough for practical purposes and is very easily carried out. Each tin of Soiltext (sold at 4/- by the Society) contains a tube of liquid, a few drops of which when poured on a sample of soil, produce a colour reaction which is compared with a colour chart supplied, and the acidity or alkalinity of the soil is plainly indicated. This is certainly an asset to any enterprising farmer.

Numerous enquiries have had to do with the problem of ants. Besides making it uncomfortable for the gardener himself sometimes, these little creatures rob the nurseries of seeds and attack a large variety of plants, and they are more difficult to control than appears at first thought. It is no use trying to destroy only those frequently seen running about on the plants as their places can always be filled by hordes more numerous than before. The nests otherwise known as formicaries, must be located, difficult though that is in many cases, and the prolific queen ant must be destroyed. A treatment which we have found very effective, is to pour a solution of borax in boiling water (2 oz. borax to 1 quart water) into the nests. This has the effect of driving away from that spot any ants that might escape the hot liquid. There is of course our Kerosene-Jeyes Emulsion sold at 1/3d. per pint, the stock solution of which can be heavily diluted for the purpose. Spraying the trees on which the worker ants abound, is not ineffective, thus efforts should be concentrated on locating and treating the nests. The Government Entomologist dealt fully with the treatment for ants (and other Garden Pests) in an article published in the Journal for April, 1937. Reprints of the articles may be obtained at the office here.

The subjects of these daily interviews cover a wide field, and only a few can be discussed in a short article. We may return to the topic later.

PRUNING FRUIT TREES*.

Introduction.

The pruning and training of fruit trees is to some people a regularly recurring phase of daily toil, whereas to others it is not infrequently a fascinating hobby. Since classical times much has been written in many languages on the subject, and from even earlier times, no doubt the matter has been discussed at length without any inexorable rules being laid down to govern the practice, for the pruning of fruit trees is both a science and an art.

The Evolution of Pruning.

It is probable that the practice of pruning fruit trees has gradually evolved since pre-historic times when early man first herded the animals which he has gradually domesticated on the most fertile lands, the lands incidentally, on which grew the wild fruits and berries which made a welcome addition and variant to his diet. The other animals also found the fruits a welcome addition to their diet and so browsed

*Adapted from a Wireless Talk by JOHN B. HARRIS (District Horticultural Advisor) published in the Journal, Dept. of Agriculture, New South Wales, Vol. XLIII No. 1.

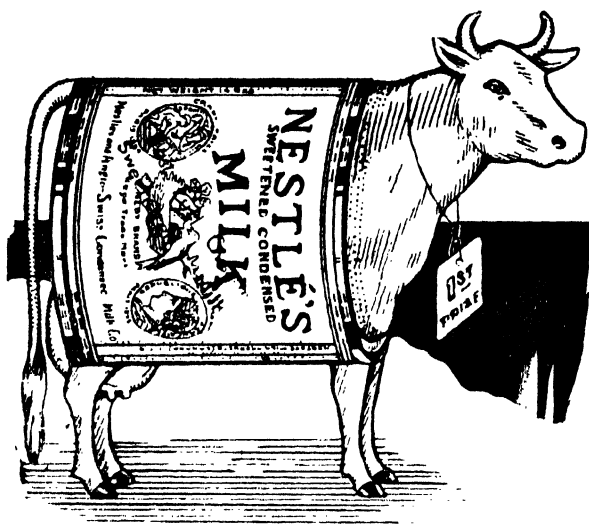
on such lower portions of the trees as they could eat. This led to a sort of mushroom shaped tree having one or more bare stems or trunks to a height of 5ft. or 6ft. from the ground with a large dome of fruit-bearing branches surmounting the trunk or trunks. One of the earliest practices of pruning probably consisted of cutting or breaking away the lower branches in order to force the vigour of the tree into branches where the resultant foliage and fruit could not be destroyed by stock. Thus evolved the type of tree known to orchardists to-day as a "standard," a type which is still in common use where orcharding is combined with grazing. The fundamental principle of removing certain portions of the tree so as to direct the vigour of the tree to branches where it can be more economically used is the basis of pruning.

Early observers, no doubt, noticed that the greater portion of the fruits that they gathered grew on the outside of the dome-shaped standard trees. Many of those who gathered fruits may have noted this fact, and then thought no more of it until some of the more enlightened of them concluded that the sunlight and fresh air had a decided influence in developing the blossom, and subsequently fruit on the tree, and it was these factors which made the tree fruitful on the outside, mainly or almost entirely. They may also have noticed that shoots and twigs in the more congested and shaded parts of the tree tended to die. To-day the fundamental fact still remains—sunlight and fresh air are essential for fruit production. The science of botany, more particularly in its structural, physiological, and chemical branches, has enlightened us still further as to why this is so, and an understanding of it helps to drive home the fact that where fruit wood is too congested, buds fail to develop satisfactorily and the fruit wood eventually dies. So the injunction to pruners is that fruit wood should be well spaced.

In considering the evolution of pruning, one has now to record an epoch-making event, i.e., the realization that a tree, like a standard tree, with the dome turned upside down and hollowed out should be twice as productive as a standard tree, the heart of which was all shaded. When considering such an inverted dome or basin shaped tree, the fact becomes evident that the early morning sun strikes the eastern outside of the tree, and late morning and early afternoon sun shines down over the inside of the tree, and the later afternoon sun shines on the outside western side of the tree, and thus all sides of all limbs have the maximum possible sunlight and the tree then attains the maximum productivity for the amount of essential framework. In a tree trained with an opened centre, the tendency of shoots, twigs, and limbs to die from over-crowding is minimised.

The Open-Centered or Basin-Shaped Tree.

This is a comparatively late development when considering the evolution of fruit tree training and pruning from the earliest times; this was the type of tree which appears to have been cultivated mainly by the first gardeners and orchardists. In the countries from whence early settlers came, maximum sunlight was essential for fruit production, but following the early days of colonial settlement, and concurrent with the extensive development of commercial production of fruit in countries having a warm climate, it became apparent that temperate climate fruits might have too much sun and trees might too, and basin-shaped trees did suffer severely from sunburn. The obvious defect of the basin-shaped tree was its rather flat spread of branches where



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they leave the trunk, which branches received the full force of the midday sun and so soon became sunburned on their top sides, thus restricting the free flow of sap to the upper portions of the tree.

To remedy this defect, a further step in the evolution of tree training took place with the development of the inverted cone or half-open umbrella-shaped type, which is the type commonly grown to-day. This type of tree resembles nothing more than a half-open umbrella with the central shaft and transverse stays removed and also the cloth covering. The ideal type of tree aimed at to-day consists of a short trunk with limbs arising at approximately the same level, and radiating from the trunk at an angle of about 35 deg. to 45 deg. from the vertical. One exception to this style of training which goes to prove that there are no inexorable rules governing pruning, are citrus trees which, being evergreen, do not lend themselves to the relatively severe pruning necessary to develop the inverted cone type of tree.

Learning to Prune.

To those who are inexperienced in pruning, probably the best way to learn is to read a good textbook on the subject. After having studied a good text book, the novice will find much to puzzle him when he endeavours to apply his recently acquired knowledge, for there are no rules about pruning which are not made to be broken. Pruning as a science and an art must combine the exact knowledge of the former with the freedom of the latter. The study of structural botany will afford many clues to elucidate the problems of pruning, but as this is not generally acquired by those who have not had opportunity to study at an agricultural college, the best course is to learn from a pruner of proved competency.

The "Lorette" System of Pruning.

This is the title of a treatise on pruning fruit trees written by Monsieur Louis Lorette, Chief Instructor in Horticulture at Wagnouville, France, a book which has much to commend it. The system some years ago aroused a storm of criticism, but during later years has been increasingly studied and applied in Great Britain and elsewhere. Very briefly explained, the method succeeds largely through the development of stipulary buds and by spring, summer and autumn pruning, rather than by pruning in winter. Indeed, practically the only winter pruning done under this system is the removal of large limbs when this is occasionally necessary through breakage or disease. To quote Monsieur's Lorette's own words "to obtain the maximum crop, it is necessary to build up the trees by using stipulary eyes and to keep all branches 16 inches apart." The reference to limbs 16 inches apart should not be taken too literally here as it refers rather to pyramid and espalier trees growing under French conditions.

Stipulary buds are those formed (very often they are almost inconspicuous) at the base of the stipules or little leaves on either side of the main leaf stalk. Just as each leaf stalk has a bud or buds on its axil or angle formed by its junction with the shoot, so each stipule or tiny leaflet has a rudimentary bud in its axil. The stipulary buds tend to produce weak, but fruitful growth.

The "Lorette" system appears to be an outcome of the classic trieme or three eye system of pruning, which system, in addition to producing an abundance of strong wood growth started a proportion of stipulary buds into growth and production.

Modification of Pruning to Prevent Diseases.

The pruning of fruit trees to assist in disease and pest control has been frequently referred from the standpoint that it facilitates spraying. Mr. D. B. Adam of the Waite Research Institute has indicated that the gummosis fungus which has decimated orchards of the rainfall areas, attacks the trees largely through pruning wounds at times when they are continuously wet, shortly after being freshly cut. Bearing this in mind, an experiment embodying 296 trees is being conducted to test the influence of three systems of pruning on the incidence of gummosis. The test may take many years to provide evidence sought relative to the incidence of the disease, but in the meantime the fruitful appearance of those trees pruned in spring, summer and autumn to obviate winter wounds and disease infection is gratifying.

DEPARTMENT OF SCIENCE AND AGRICULTURE.**DEPARTMENTAL NOTES.**

IN order to keep our members in close touch with all agricultural activities we propose to publish from time to time notes on the activities of the various divisions of the Department. The following are the first series and are for the month of September, 1939.

Editor.

Government Chemist's Division.

Four hundred and sixty-nine samples were analysed at the Laboratory. Of these 361 were official, being mainly specimens submitted by the Police, 145 ganja specimens and 131 exhibits relating to the breaches of the Coin Law. Of 108 general samples analysed, 86 were milk from the Government Stock Farm, 7 were dips from Dipping Tanks, 12 rums and 3 miscellaneous. A propane gas plant has been taken over for use in the Laboratory in cases of emergency such as may arise if the acetylene supply should be curtailed owing to the difficulty of obtaining carbide during the war.

Agricultural Chemist's Division.

Exchange examination of Jamaica soil types are being continued. It would appear from the results of analyses that many of the red and brown soils are deficient in available potash. Determination of PH values of 120 samples taken from the Coconut Wilt area in St. James and Hanover show that there is no relation between soil reaction and Wilt Disease of Coconuts. A sample of food fit for human consumption and prepared from shredded cactus was analysed; 6 samples of dehydrated breadfruit, 4 of fertilizers, 2 of water and 10 of tobacco were also analysed.

Lands leased at Caymanas are being utilized in the laying out of another food crop experiment. An experiment, in which 16 varieties are being compared in a new layout, has been started. During the month several of the food plots were harvested and new plantings made. Yields varied considerably owing to the varieties of treatment; the work of selection is being continuously maintained. At the different plots the crop refuse is being used for composting and where possible, farmyard manure is obtained from neighbouring estates. Some seeds of a new crop were obtained from Ceylon and distributed to the various stations.

The citrus experiments at Wakefield and Grove Place received a great deal of attention. Fertilizers were applied and spraying control of pests and diseases carried out.

Entomological Division.

The Entomologist was called upon to advise control measures for a number of pests. These included coffee leaf miner, scales on citrus and avocado, weevils and other pests of stored grain and insects attacking seedlings in the nurseries of the Forestry Division. The work on termite control investigations and experiments in regard to methods of construction and use of building material under tropical conditions was continued. Sugar Cane moth-borer surveys were carried out at Hope and on one Sugar Estate. Results show that while damage to plant canes and first and second ratoons is insignificant, the incidence of the pests rises rapidly in old ratoon fields especially.

A new predator of the Banana Borer was received from Fiji and distributed. Other predators have been found to be established on a property in Manchester though in small numbers. They were imported into the area ten months ago. Mealy Bugs control has been carried out in various parts of the Island.

Plant Pathologist's Division.

Spraying and dusting experiments in bananas have been continued. With the coming of the rains Leaf Spot has been on the increase but effective control has been maintained on plots which have been sprayed and dusted. On several plots the effects of spraying with Perenox and Bordeaux are being compared.

Investigation of the shedding of immature breadfruit and ground rot of mahogany seedlings in the Forest Nursery were undertaken.

Botanical Division.

As is customary at this time of the year bananas were not flowering as freely as during the previous two months. There was therefore a falling off in the number of pollination carried out as compared with August. The Banana breeding plots suffered from the severe drought when a number of seedlings died.

The corn improvement campaign received considerable attention. The Botanist spent the first fortnight in the United States visiting corn-breeding institutions. Arrangements have been made to plant 7 acres of land loaned for the purpose by the West Indies Sugar Co., Limited, with corn varieties for a selected experiment. One acre has been already planted out at Hope and will be used for breeding work.

Produce Inspection Division.

Effects of the long drought showed itself in the quality of bananas inspected at the various buying centres. Fruit from St. Mary in particular were very poor. Some improvements were noticed in other areas. The citrus season showed steady advance during the month and each week large quantities of grapefruit were exported. The quality was satisfactory though occasionally immature fruit was encountered by Inspectors.

Veterinary Division.

Tuberculin tests begun in August were completed during September. The herd at Hope passed a clean test for 1939. A Berkshire sow at Grove Place was treated for paralysis in the hind-quarters. The animal was responding to treatment though the cause of the trouble has not been definitely established. There were 12 cases of anaplasmosis (a form of tick fever) amongst cattle in St. Ann. Several cases of piroplasmosis (another form of tick fever) were successfully treated with injections of "Acaprin."

Visits were paid by members of this division to a number of estates in connection with the dairy extension scheme. Centres for the establishment of Stud Stations were selected and inspection of prospective stud animals carried out. Advice on the purchasing of bulls was given to private individuals. Certificates were issued for export of two racehorses and the Government Veterinary Officer called upon to inspect one racehorse, three dogs from England and one bulkin from Canada.

Hope Stock Farm.

The Farm suffered from dry weather conditions during August and September. The silage crop gives promise of a yield above normal. The health of live stock on the Farm was uniformly good. The only death recorded was one bull calf. Milk production totalled 36,791 quarts for the month. Of this amount 23,823½ quarts were sold. In view of the high demand for milk, no butter was made. 4 bull calves, 7 heifer calves and 34½ dozen eggs were sold. At the public stud station there were four services to the Jersey bull.

Grove Place.

They had 12 rain days at Grove Place during the month. The milk yield was an average of 5.54 quarts per cow per day. Twenty-one cows gave 3,515 quarts of milk. Of this, 2,798 quarts were used for making 266.5 pounds of butter. The health of the stock was good. Twenty-four head of young cattle were vaccinated against Black Leg. Additions of stock on the Farm consisted of 2 pure-bred and 8 half-bred pigs. The stud season for mares and jennets was closed during this month.

Extension of areas under cultivation on the Farm was being carried out. Several fields have been set out in experimental crops and one plot has been prepared for multiplication of red-peas for seed distribution.

Sugar Cane Experiments.

There has been considerable growth in nearly all the varieties of sugar cane. The most recent importations from Trinidad are growing slowly and as yet have showed no signs of Mosaic Disease. Six seedlings were sent to another nursery for multiplication. Four others showed susceptibility to Mosaic and had to be destroyed. Distribution of cuttings of different varieties of canes amounted to 2,950 from Hope and 41,800 from Cornwall nurseries.

Public Gardens.

At Hope, in addition to routine activities, advantage was taken of the favourable weather to extend nursery and planting operations. The Talipot Palms which flowered were cut down and have been replaced. With the aim of bringing together a variety of tropical fruit trees for the convenience of visitors, 38 plants have been set out in the gardens. A large number of orchid blooms—460 *Cattleya*—were displayed in the Orchid House. From the Hope Gardens nursery 2,702 plants were sold and 769 distributed free of charge.

Crop Development Division.

The nursery at the Experimental Station at Hope has been extended to cope with the necessary preparation for planting in the Spring. Over 20,000 mango seedlings are already growing in beds and ought to be ready for budding by the end of the year. Avocado pear seeds

were obtained from different parts of the Island and 10,000 sown in the nurseries.

The establishment of Tahiti limes is being gradually established on different plots. The top working of old Avocado pear trees with the varieties under trial has continued in Manchester while seedlings were budded in Portland. These show a take of over 80 per cent. It has been found that on top worked trees on the Liguanea Plains it is necessary to exercise caution in the cutting back of any water shoots growing from below the ring as in many cases plants which were so cut, have died. Cold storage tests were carried out on some varieties.

Forestry Division.

There has been a continuation in the work of acquisition surveys and demarcation of boundaries. In the Friendship Hall and Trafalgar sections of the Blue Mountain Reserve nearly 5 miles of boundary trace were re-filled and widened. Considerable progress has also been made in the building programme. New accommodations for the guards have been completed at Portland Gap, Cinchona and Quickstep, and the hut at Hermitage is nearing completion.

The nurseries were given the usual attention and an outbreak of disease among Mahogany seedlings at Hermitage was treated by the Plant Pathologist. One hundred and thirty-three and a half quarts of timber seeds were collected and sown during the month.

Afforestation is being continued at Hollywell, Cinchona and Green Hill where recent Wattle plantings are showing remarkable growth. New land is being continually cleared for extension purposes.

POULTRY NOTES.

AT this time of the year when the weather is cold and damp, hens should be given a warm mash last thing in the evening before they go to roost.

The mash should be prepared by pouring warm water on to the dry meal after salt has been added to the water. The feed is then allowed to stand until it has absorbed the water. Just enough water should be poured on so that the final feed is a warm, crumbly, flaky mass.

When calculating the amount of feed which should be given any number of fowls, it is wise to figure out the quantity per bird per day. This weight should be used purely as a guide.

Care should be taken with these weights when the feed is given as a wet mash. The average daily allowance of mash for a laying pullet is about 2 to 2½ ounces dry. It is important to remember that the amount to be fed should be calculated on the dry weight of the mash and not when it has been mixed and is wet.

It is quite surprising how much water is absorbed by a dry mash. Of course, it varies considerably according to the kind of meal used.

Two ounces of dry mixture will weigh around five ounces when moistened by water. It will be seen, therefore, that unless the mash is weighed dry the birds will be half-starved.

The best plan is to weigh a quantity of the dry meal, allowing each bird 2½ ounces. The mash should be then soaked to moistness and fed in the feeding trough in the usual manner. Then observe the birds. If the amount of feed given has been cleared up too quickly it should be increased. If a little is left, then the quantity should be reduced.

The main point is to make sure that the layers have all the food which they require, particularly if this is provided in the form of a wet mash as the last meal of the day.

Bedding down the run.

All poultry runs, whether they be floored with concrete or wood, or be just plain earth, should be bedded down with some sort of litter. The chief value of the litter is to promote exercise when the scratch grain is buried beneath the mash.

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From 6 Weeks old on

Pioneer TURKEY Grower

Pigeons:

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The exercise promotes the health, wards off diseases by helping the digestive organs of the birds and improves and promotes free circulation of blood.

In addition to this, the litter keeps the floor or ground of the run dry and clean. It also provides a cushion for the feet of the birds as they jump up to and down from the perch and nests; in this way the common feet-trouble in birds is prevented.

Litter also prevents vices as the birds are kept busily scratching most of the time. When worn out, of course, the litter makes useful manure.

Any material which is light and loose is good for bedding—that is to say, the material should not have the tendency to pack hard and become too soppy after rain. Some good materials for bedding are shavings, trash of parchment coffee, dried grass—provided it is not in long bundles—dead leaves, and hullings from rice. One or other of these materials can be got by every poultry keeper.

Materials such as saw-dust would not be good for bedding as it packs too closely.

The whole pen should be bedded down to a depth of about six inches for lighter material and about four inches for heavy material such as shavings.

There is no fixed time for removing the litter; this must be decided by the poultry man. As soon as the material has become damp, matted, worn out and heavy, it should be shovelled up and used in the garden for manure.

Resting runs.

At least one of the poultry runs should be vacant at some time,* that is no fowls must occupy it. It should be cleaned of all litter, the roosts and boxes sprayed with a solution of Nicotine Sulphate, then white-washed and the whole run limed.

As soon as the lime has worked in, the soil should be lightly turned over and sowed with some form of grass or easy, quick-growing plant, such as Callaloo or Guinea Corn. This will provide valuable green feed for the fowls later on, and help to keep the run clean and sanitary.

A. T.

FREE SEEDS.

THE Society has no funds from which to provide free seeds. It will be readily seen that if every district were to be supplied with free seeds a large sum of money would be necessary.

Apart altogether from the question of cost the Society does not like the distribution of free seeds. Good seeds are worth paying for.

In cases where people have not got the money to buy the seeds they should endeavour to arrange a small loan from their nearest Loan Banks, using this loan to pay cash for the seeds.

JUVENILE EXHIBITION, MT. CAREY.

The Juvenile Agricultural Exhibition in connection with the Mt. Carey Juvenile Branch was held on July 14, and proved very successful.

The judges of the exhibits were:—Messrs. O. P. Martin, Agricultural Supervisor of Elementary Schools; E. B. Rodgers, Superintendent of the Boys' Practical Training Centres; C. H. Williams, retired Asst. Inspector of Schools, and S. A. Scott, Headmaster of the Rochampton Elementary School.

Among the exhibits, which were of a very high standard, were vegetables cereals, fruits, cassava products, dairy products, and small stock.

There was a large attendance of parents, guardians and visitors, who expressed the hope that there will be an Annual Exhibition.

BRANCH NOTES.

CLARENDON: Beckford Kraal: Beckford Kraal P.O.—Meeting held 6.11.39. The meeting was opened with prayer by the 1st Vice-President, Mr. E. Gordon. There were present more than 100 persons. 26 new members were enrolled. Instructor Thompson gave an interesting address on the Food Production Campaign. Authorised Persons gave their reports. The meeting was terminated by "the King."

J. A. SWENNEY,

Secretary.

Brixton Hill: Mocho P.O.—Meeting held 14.9.39. Present: the President, the 2nd and 3rd Vice-Presidents, the Secretary, the Treasurer, the Instructor, 8 other members and a visitor. The purchase of a ram for the Branch was discussed. The Secretary informed the meeting that a plot had been acquired for the Juvenile Branch. Correspondence was dealt with. The Instructor in his address, stressed the importance of a meeting of the C.B.A. to be held at Chapelton for the purpose of discussing the vital problem of local Food Production. He strongly urged agriculturists to attend. The matter of corn production was also dealt with. The meeting adjourned with the singing of the National Anthem.

H. S. HALSTEAD.

Secretary.

Crooked River: Crooked River P.O.—Meeting held 13.10.39. Present: 14 members, Mr. I. L. Gouldbourne, President; three Vice-Presidents, the Treasurer and the Secretary. Food Production and the Rat Extermination Campaign were discussed. Fourteen members were enrolled. The proposal of a Loan Bank was discussed. The necessity for Lands was shown. The meeting terminated with "the King."

O. H. WILLIAMS.

Secretary.

HANOVER: Church Hill: March Town P.O.—Meeting held 25.10.39. Present: T. Z. Gordon, President; Mr. H. E. Patterson, Treasurer; the Secretary and several members and visitors. Correspondence was dealt with. The need for an Authorized Person was stressed. It was decided to approach the following gentlemen:—Messrs. A. A. Thompson, S. Aguilar and A. C. Barnes, Manager of the West Indies Sugar Co., asking that they place even a small acreage of the respective properties—Rhodes Hall, Fish River and Winchester at the disposal of members so that they could participate in the Food Production Campaign. The meeting terminated with the singing of the National Anthem.

N. G. GORDON.

Secretary.

MANCHESTER: Auchtembeddie: Auchtembeddie P.O.—Meeting held 13.10.39. Mr. J. N. Chambers, 2nd Vice-President, presided. The matter of Government's proposal to assist growers through the Loan Banks was dealt with. It was decided that a resolution asking that large property owners rent lands to peasants be sent through the Parent Society. Regret was expressed at the death of Mr. I. N. Taylor, 1st Vice-President. An address on Food Production was given by Instructor Kelly. Five new members were enrolled. The meeting ended with "The King."

E. W. FOOTE.

Asst. Secretary.

Cumberland: Banana Ground P.O.—Meeting held 19.10.39. The Secretary addressed the Juveniles and urged them to make plans for the Juvenile Show to be held on Easter Monday, 1940. Cultivators were registered by the President and the Instructor. The President addressed the meeting on various matters including the Rat Extermination Campaign, Compost, Agricultural Loan Bank and the Food Production Campaign. There was a general discussion of the European situation, after which the meeting terminated.

THOS. W. BISCOE.

President.

Hatfield: Hatfield P.O.—Meeting held 15.11.39. Present: the President, 8 other members and Mr. T. Atkinson, a visitor. The President dealt fully with the Food Production Scheme, in relation to the urgent need for cultivable lands in and around those areas that are now suffering from the effects of the recent storm. Correspondence was dealt with, and arrangements were made for the meeting of the M.B.A. The meeting terminated with the National Anthem.

(Miss) G. E. BAILEY,

Secretary.

Mile Gully: Mile Gully P.O.—Meeting held 27.10.39. Present: Mr. S. M. Hart, 1st Vice-President; Mr. R. H. Dwyer, Secretary; Instructor Darby, 8 members and a goodly number of visitors. The Instructor gave an address on Food Production and explained how the Campaign ought to be conducted. He was thanked. Enquiries were made re financial aid for planters. Land Settlement was discussed. The meeting terminated.

R. H. DWYER.

Secretary.

Old England: Old England P.O.—Meeting held 7.11.39. Present: Mr. E. B. R. Jackson, 1st Vice-President; Messrs. H. J. Pinnock and E. Johnson, 2nd and 3rd Vice-Presidents; 13 other members, the Secretary, Mr. C. P. Watson and Miss M. B. Sinclair, Assistant Secretary and two visitors. Mr. Jackson encouraged Food Production. Members contributed towards the purchase of a Sprayer for the Branch. Correspondence:—(a) Letter from the Secretary of the Parent Society re

the price of red peas: (b) Letter from the Parochial Board of Manchester re the opening of a road through Epping Forest: (c) Letter from the Secretary of the M.B.A. informing the Branch of the date and place of the Annual Meeting. These letters were dealt with. The Food Production Campaign was discussed. Members promised to co-operate. The singing of the National Anthem brought the meeting to a close.

C. R. WATSON,

Secretary.

Waterloo: Harry Watch P.O.—Meeting held 20.10.39. Present: Mr. E. Coley, President; Mrs. M. Donald, Secretary and 20 members. The President exhorted the gathering to aim at co-operative marketing. New members were enrolled. It was decided to send letters to the Land Settlement Commission and the M.L.C. re the need for land. The Registration of growers was discussed. The meeting was closed with the singing of the National Anthem.

(Mrs.) M. DONALD,

Secretary.

PORTLAND: Bybrook: Skibo P.O.—Meeting held 12.10.39. Present: The Instructor, President, Secretary, 13 members and several visitors. The meeting was opened with prayer by the President, Mr. S. E. Patterson. Correspondence was dealt with. Mr. S. E. Patterson, delegate to the Half-Yearly General Meeting, gave a report. He was heartily thanked. The Instructor gave an address based chiefly on the Food Production Scheme. The names of co-operators in the Rat Extermination Campaign were listed. The meeting terminated with the singing of the National Anthem.

(Miss) I. M. FACEY,

Secretary.

Shrewsbury: Fruitful Vale P.O.—Meeting held 17.10.39. Present: Messrs. Samuel Bell, President; Instructor Wilmot, 57 members, the Secretary, Mr. L. I. Williams, many visitors, including Messrs. Edwards and Earle of Buff Bay and many juveniles. Letters were presented from (1) W. Harper Watson, Esq., apologizing for his absence: (2) Hon. H. E. Allan re notice given to tenants on the Crown Lands; (3) Secretary J.A.S. re Rat Extermination Campaign; (4) Supervisor of Medical Services re opening of Govt. Dispensary at Mt. Pleasant; (5) Commissioner of Lands re the Shrewsbury Land Settlement Scheme; (6) Clerk, Portland Parochial Board, re the Twickenham and Commodore Water Supplies; (7) Secretary, J.A.S. re Food Depôts. These letters were discussed. Roll Call was taken. The Instructor addressed the House. He congratulated the Branch on its achievement of having 91 members on roll, though only seven months old. He paid tribute to the organizing ability of the Secretary, Teacher Williams, and exhorted the members to co-operate with him. He gave an interesting and educative address on "The Growing and Marketing of Food Stuffs," for which he was heartily thanked. Many questions were asked. Cultivators were exhorted to register. Messrs. Edwards and Earle gave encouraging and inspiring addresses. The singing of the National Anthem brought an enjoyable meeting to a close.

(Miss) ENID I. BUCKLEY,

Reporting Secretary.

ST. ANDREW: Tom's River: Castleton P.O.—Meeting held 11.10.39. Present: Rev. E. W. Hunt, President; Mr. Lewis Ferguson, 1st Vice-President; Mrs. A. T. Naylor, 2nd Vice-President, a fair number of members, Mr. H. L. Naylor, Secretary; Mr. D. A. Jones, Instructor, and Messrs. Tomlinson and Gayle. The President outlined the object of the meeting and dealt with the pressing need of increased Food Production. The following headings were specially outlined:—(1) The motive for such a Campaign; (2) The response needed to ensure against shortage of foodstuffs. Instructor Jones dealt with similar aspects and impressed members to register with the Food Production Board. This was acceded to. Lengthy discussions ensued from questions. The members arrived at the conclusion that steps taken by Government would ensure prosperity to the Island. The meeting terminated with the National Anthem.

H. L. NAYLOR,

Secretary.

ST. CATHERINE: Guy's Hill: Guy's Hill P.O.—Meeting held 28.9.39. Over fifty persons were in attendance. Mr. V. A. Bowen presided. Miss Moore offered prayer. Papaw growing was emphasized. Mr. Evan Donaldson spoke on the Papaw. Correspondence from the Parent Society was dealt with. The Branch agreed to co-operate in the Rat Extermination Campaign. It was thought advisable that the Branch should plant a barrel of potatoes on land to be obtained from the Jamaica Welfare Ltd., to be used as a Demonstration Plot. The Secretary pointed out the necessity for a pump for the use of members. A very profitable meeting was terminated.

T. A. GRAY.

Secretary.

Morris Hall: Harker's Hall P.O.—Meeting held 11.10.39. Present: 20 members, the President, Mr. J. L. Edwards, Treasurer; Mr. U. Price, 1st Vice-President; Mr. F. S. Rhooms, 2nd Vice-President; Mr. R. Beckford and the Secretary. A Report from the Concert Committee was submitted. Matters arising from a special meeting held on 26th Sept., were dealt with. Messrs. F. S. Rhooms and J. L. Edwards gave reports on the business transacted at the meeting held at Bog Walk on 29th September. The Secretary was instructed to ask Instructor Byles to attend a special meeting re the Food Production Scheme. The Authorized Persons gave their reports.

T. E. LAWRENCE,

Secretary.

Thompson Pen: Spanish Town P.O.—Meeting held 11.10.39. Present: Mr. A. A. Russell, J.P., M.P.B., Mr. C. E. Walters, President; Mr. McFarlane, 1st Vice-President, 25 members and visitors. The President pointed out the necessity for a Demonstration Plot. Mr. Russell encouraged members to produce more foodstuffs. Four new members were enrolled. The meeting was terminated by the singing of the National Anthem.

GLADYS REID,

Secretary.

Time and Patience: Linstead P.O.—Meeting held 10.10.39. Present: Mr. W. Bissick, President; Miss A. M. Boyd, Secretary; Miss O. McNeil, Asst. Secretary; 4 members and 2 visitors. Establishment of Marketing Depôts, Registration of growers, and the Rat Extermination Campaign were discussed. The delegate to the meeting at Bog Walk reported. He spoke on the great value of the Parent Society. Foreman McNichol visited the district re Registration under the Food Production Scheme. One A.P. reported "all correct." The meeting terminated with the singing of the National Anthem.

(Miss) A. M. BOYD,

Secretary.

ST. ELIZABETH: Retirement; Maggotty P.O.—Present: Mr. Fred Kessendal, 1st Vice-President, who presided; 17 members and over 50 visitors. Correspondence was dealt with. There were discussions as to the extent of storm damage and economic results. The Secretary was advised to write the Secretary of the Society asking for directions as to obtaining early help from Government in restoring fields. There was an address by Mr. Clement A. Thomas, probationer Minister of the Retirement Charge, on dicting. The meeting terminated after the singing of the National Anthem.

A. JOSCELYN NELSON,

Secretary.

Rose Hall: Rose Hall P.O.—Meeting held 22.9.39. Present: Mr. S. B. Powell, President; 18 members and Mr. H. W. Lynch, Instructor. Correspondence was taken. Members appreciated the effort of the Parent Society in the "Rat Extermination Campaign" and promised their full support. Much interest was displayed in the address of the Instructor on Government's Food Production Scheme, and he was thanked for his advice on suitable crops to be grown. Much satisfaction was expressed at the completion of arrangements for the Warminster Land Settlement Scheme.

FRED S. JONES,

Secretary.

Siloah: Siloah P.O.—Present: All members of the Branch and over 100 visitors. Instructor Kelly outlined in a very interesting manner, the Food Production Scheme. The need for lands was pointed out, but members were very enthusiastic. Two resolutions were unanimously passed—one expressing the people's appreciation for Government's quick action in preventing profiteering, and the other pledging continued loyalty to the Empire in the present crisis. Several questions were asked, to which the Instructor replied. Short addresses were given by the Secretary, Mrs. M. A. Reid, and by Teacher Dixon of Aberdeen. Many visitors were enrolled as members. Mr. J. A. Reid, chairman of the Branch, presided. The National Anthem brought a successful meeting to a close.

(Mrs.) M. A. REID,

Secretary.

Southfield: Southfield P.O.—Meeting held 20.10.39. Teacher McDonald, President, and Mr. Lynch, Instructor, were present. There were short discussions on the Tomato, Potato and Tobacco (Virginia) Industries, and the Land Settlement Scheme. A full discussion took place on Agricultural Loan Banks, and it was decided that one be formed in the district. Mr. Lynch supported this, and explained the rules governing Loan Banks. The meeting decided to hold a mass meeting re this matter. The Secretary was instructed to circularize the teachers of the surrounding districts. The meeting terminated.

J. J. MILLER,

Secretary.

ST. JAMES : Cambridge; Cambridge P.O.—Meeting held 19.10.39. There was a fairly good turn-out of members, and a number of visitors. Mr. J. C. Fletcher was introduced to the house. A very lengthy discussion took place on the Food Production Scheme. It was decided that a Committee be formed to draft a resolution asking Government to rent lands to those who are willing to plant but have no land. The Branch was reminded of the Half-Yearly meeting of the St. James Branches Associated to be held at Cambridge. The Chairman made an appeal to members and friends to be loyal to the Empire. Mr. J. C. Fletcher addressed the meeting, which was brought to a close by the singing of the National Anthem.

J. GORDON EXCELL,

Secretary.

Catadupa : Catadupa P.O.—Meeting held 11.11.39. Present : Instructors Robinson and Jobson; the President; Secretary, and 16 members. The new Instructor, Mr. Jobson, was cordially welcomed and promised the support of members. The principal item of business dealt with was the urgency of immediate relief work being opened up in the locality to assist the peasantry. As a result of the discussion, a strong deputation was appointed to interview the M.L.C.; the Chairman of the Parochial Board and the Lands Department Committee for the parish. Instructor Robinson stressed the necessity for members to register under Government's Food Production Scheme. He advised that early crops should be planted without delay, in view of the likelihood of a shortage of imported foodstuffs through war conditions. Many growers were registered.

C. A. WRIGHT,

Secretary.

Orange : Sign P.O.—Meeting held 26.10.39. Present : Mrs. R. A. Anglin, President; Messrs. B. B. Bowen, 1st Vice-President; J. D. Malcolm, E. S. Anglin, Secretary; Miss I. Nelson, Asst. Secretary, and 17 members. Among the visitors were Messrs. W. Shore, J.P., Hon. A. B. Lowe, Instructor Hastings, and many others, including senior pupils of the school. Mr. Hastings advised the planting of more foodstuffs. Correspondence was read. The Rat Extermination Campaign was discussed. Delegates appointed to attend the Half-Yearly Meeting were Messrs. E. S. Anglin, B. B. Bowen, R. C. Jobson, T. A. Nelson and H. Lindo. Members suggested that a ram be purchased for the Branch. A special function was carried through, at which a Coleman gas lamp for the use of the Society was unveiled by Mrs. R. C. Jobson. The Hon. A. B. Lowe and Mr. Shore gave short addresses, and encouraged the Branch in its useful work. The senior pupils contributed songs and recitations. A debate followed. The meeting terminated with the singing of the National Anthem.

E. S. ANGLIN,

Secretary.

ST. MARY : Free Hill; Free Hill P.O.—Meeting held 28.9.39. Twelve members present. Discussions:—(1) Rat Extermination Campaign. (2) Growing more Foodstuffs. The Secretary was instructed to write to the Parochial Board asking for a rebate on water rates. The meeting terminated.

N. B. FALCONER,

Secretary.

Marlborough : Richmond P.O.—Meeting held 24.10.39. Present : 8 members and 2 visitors. Food Production was discussed. It was decided that a vegetable nursery should be started by the Branch so that members could be supplied with seedlings. A. P. E. Riley reported one arrest. The meeting terminated with the singing of "The King."

S. L. S. STERLING,

Secretary.

Mt. Joseph ; Enfield P.O.—Meeting held 29.9.39. Present : Messrs. F. Edwards, 3rd Vice-President, presiding; F. Edwards, 1st Vice-President; C. I. Bruce, Secretary and 36 members. Letters from the Parent Body re "Rat Extermination Campaign," "Increased Food Production," and the establishment of local depôts for collecting food supply, were read and discussed. Four new members were enrolled. The Secretary gave a report of the meeting held at Enfield on Wednesday, 27th. The singing of the National Anthem brought the meeting to a close.

C. I. BRUCE,

Secretary.

ST. THOMAS : Cedar Valley; Cedar Valley P.O.—Meeting held 6.10.39. The meeting was well attended. Communications from the Parent Society were brought forward and discussed. The chief feature was the Banana Leaf Spot Campaign. After some discussion, it was decided that the matter be deferred. The President strongly advised the planting of catch crops, as recommended by the Parent Society. A welcome was extended to the visitors. After discussion of a few minor matters, the meeting rose with "the King."

H. M. ALDRED GIVANS,

Secretary.

Dalvey : Dalvey P.O.—Meeting held 19.10.39. Present : Mr. U. A. McLaren, Instructor; officers of the Branch and about 60 people comprising members and visitors. Mr. McLaren encouraged Food Production. Members were informed that the Government would provide a market for their surplus products. Messrs. H. Bin and E. R. Morgan gave addresses. The meeting ended with the National Anthem.

J. A. McPHERSON,
Asst. Secretary.

Hagley Gap : Hagley Gap P.O.—Meeting held 20.10.39. Present : Mr. John Gordon, President; 26 members, and 27 visitors. Correspondence was read and dealt with. The Instructor spoke on the Food Production Campaign, Loan Banks and available lands for cultivation. A few members registered as growers under the Food Production Scheme. Authorized Persons reported "all correct." New members were enrolled. The need for a Telephone Service and a Savings Bank was pointed out. The meeting terminated with the singing of the National Anthem.

ASTLEY HENDERSON,
Asst. Secretary.

Somerset : Trinity Ville P.O.—Meeting held 28.9.39. Present : Messrs. E. V. Brown, President; F. L. Beckett, 1st Vice-President; many members and over 60 visitors. The President gave his usual address of welcome. A Kitchen Garden Competition on Cabbage was deferred, owing to weather conditions. Correspondence was dealt with. The Food Production Campaign was lengthily discussed. Co-operation was ensured. Circulars re a Rat Extermination Campaign and a Marketing Depot were read and support promised. The Secretary was advised to apply to the Parent Body for pumpkin seeds. The meeting terminated.

J. A. TELFER,
Secretary.

Trinity Ville : Trinity Ville P.O.—Meeting held 6.10.39. Present : Rev. E. N. Peart, President; Instructor McLaren, Rev. T. J. Gallimore, and a large number of members and visitors. The meeting was opened with prayer. Correspondence was dealt with. Mr. McLaren explained fully the Food Production Campaign—the object of it, the value of Registration of Crops, and the Marketing Scheme. He was heartily thanked. A large number of prospective growers registered. Mr. T. N. Kean, Manager of the local Agricultural Bank, explained the willingness of Government to assist growers in the campaign. He told the low rate at which money would be lent—viz., 6 and 7½ per cent., provided suitable securities could be obtained. He also emphasized the necessity for registration of crops. Members expressed willingness to participate in the Rat Killing Campaign. The meeting terminated with the singing of the National Anthem.

T. N. KEAN,
Secretary.

TRELAWNY : Ulster Spring; Ulster Spring P.O.—Meeting held 13.11.39. Mr. G. M. Sylvester presided. There was a large attendance of members and visitors. Present : Instructor Kelly, Rev. S. D. Sanguinetti, and 10 members. The President gave a hearty welcome to all present, especially to the visitors from Albert Town. Correspondence was taken. Delegates to the annual meeting of the Trelawny Branches Associated were appointed. Mr. J. Lemonious submitted the names of all properties which would be available for Food Production in the area. Mr. S. A. Powell addressed the meeting on Loans. The Instructor gave a practical address re restoring of fields. A Resolution re a D.C. for the Comfort Hall district was brought forward and carried. Authorized Person present reported "all correct." The meeting adjourned with the singing of the National Anthem.

(MISS) I. C. WILLIAMS,
Secretary.

Warsop : Warsop P.O.—Meeting held 17.10.39. The large attendance was proof of the great interest in the Food Production Campaign. Instructor Kelly gave a clear explanation of the scheme. Many questions were asked, and these the Instructor answered satisfactorily. A resolution asking that Government make an effort to acquire lands to be placed at the disposal of growers at a reasonable rental, was passed. Among the visitors was the owner of Allsides property, Sir Archibald Campbell, who showed much interest in the activities. The Instructor spoke on many other subjects, one being the Extermination of Rats. A plea was made for increased membership of the Branch, and twelve new members were enrolled. National Anthem.

H. M. DYKE,
Secretary.

WESTMORELAND: Caledonia; Darliston P.O.—Meeting held 24.10.39. Present: Mr. N. A. Grey, President, and several other members and visitors. The meeting was opened with prayer by the President. There was a discussion re the Rat Extermination Campaign. The growing of crops was planned. Members decided to rear pigs, rabbits, fowls and goats. The Land Settlement Scheme was discussed. After Roll Call and payment of fees, "the King" was sung.

(Miss) I. V. McPHERSON,
Secretary.

Haddo: Ramble P.O.—Meeting held 4.9.39. Following the opening of the meeting with prayer by Mr. I. Leslie, the President, Mr. E. R. Peart, encouraged regular attendance and unity, and welcomed Supervisor Bacquie. Mr. Bacquie suggested that application be made to the Parent Society for the loan of a bull of the milk strain. He addressed the meeting, and advised members to cultivate corn, cassava, sugar-cane, sweet potatoes and Irish potatoes. He gave a long and very practical address full of detail for the successful running of agricultural projects in and around the district. He was supported by Instructor Hastings. Both speakers were thanked.

A. G. COUSINS,
Secretary.

Petersfield: Petersfield P.O.—Meeting held 4.10.39. Present: Mr. W. E. Dunn, President; Mr. Mullings, Field Staff Officer; 16 members and over 200 visitors. The President opened the meeting with prayer, and welcomed those present. Correspondence was read re Food Production Scheme. Mr. Mullings outlined the necessity for planting more foodstuffs. A marketing dépôt and the Rat Campaign were discussed. The meeting closed after the singing of the National Anthem.

J. T. McBEAN,
Secretary.

Sheffield: Sheffield P.O.—Meeting held 18.10.39. Present: Mr. R. S. Robinson, President; several members and visitors, and Messrs. Lewis and McKenzie, Vice-President and Secretary of the Mt. Airy Branch J.A.S., who attended for the purpose of discussing the Loan Bank to be formed. They were welcomed by the President. The Secretary was instructed to obtain information from the Parochial Board re a pound. Mr. Touzalin, 1st Vice-President, gave an interesting report of the meeting held at Sav-la-Mar. He encouraged Food Production as stressed by the Hon. Director of Agriculture and other speakers at that meeting. Mr. Lewis spoke at length on the proposed Loan Bank. Mr. McKenzie spoke on matters pertaining to Agriculture. Mr. Touzalin, 1st Vice-President, moved a Resolution re lands. A resolution was forwarded to Mr. Hastings congratulating him on his promotion to the position of Supervisor. The Executive Committee suggested that the Rules be read at each quarterly meeting. The meeting closed with the singing of "the King."

S. M. HALL,
Secretary.

JUVENILE BRANCHES.

ST. ELIZABETH: Nightingale Grove; Meeting held 21.9.39. The meeting was called to order by the President, Mr. Percival Colquhoun, who opened with prayer. The matter of procuring seeds for members was brought forth. It was suggested that a small committee consisting of the officers of the Branch be organised, and the seeds delivered to them to be distributed. The Secretary was instructed to write asking the Instructor to give instructions on the growth, care and marketing of the Cauliflower. A letter from Mr. Lewis was read in which he promised the Branch a pair of rabbits to be delivered as soon as the hutch had been made. The Secretary was instructed to thank Mr. Lewis. Members agreed to build the hutch. A recitation was rendered by Miss B. Monteith, for which she was thanked. A programme was arranged for the next meeting. Roll Call showed 34 members. Six new members were enlisted. The meeting terminated by the singing of "the King."

WESTMORELAND: St. Leonard's.—Meeting held 20.10.39. Present: Teacher, Mr. W. L. Tinglin, the President; Teacher Jennings (retired); several members of the Senior Branch, and 35 Juveniles. Prayer by Teacher Jennings opened the meeting. A song was rendered by Mr. Parkinson. An address was given by Mr. A. Scarlet on "Present Day Civilization." Mr. Philip Williams recited. A talk was given by Mr. W. L. Tinglin, and a song by the Girls' Cultural Club. The National Anthem closed the meeting.

L. H. McNAB,
Secretary.

OTHER REPORTS RECEIVED.

Branch and Secretary,	Date of Meeting.	Attendance.	Business.
<i>Clarendon—</i> Brandon Hill .. (E. A. Graham)	18.9.39	23	Food Production. Small stock. Correspondence. Report of delegate to Half-yearly General Meeting. Reports of Authorized Persons.
<i>Stewarton</i> .. (Miss I. I. O'Reilly)	3.10.39	..	Addresses by Instructor Virtue, Mr. H. G. Dunkley, and Mr. Stewart, Chief Sanitary Inspector for the parish. Reports of Authorized Persons. Social.
<i>Hanover—</i> Kendal .. (D. O. Haase)	25.10.39	10	Food Production Campaign. Routine matters.
<i>Manchester—</i> Hatfield .. (Miss G. E. Bailey)	11.10.39	..	Correspondence. Rat Extermination Campaign. Marketing depots. Pruning set.
Mizpah .. (E. W. Roberts)	9.10.39	38	Address by Instructor J. A. Graham. Food Production Scheme. Correspondence. Rat Extermination Campaign. Marketing depots. Fertilisers. Buck. Exhibition.
<i>Pertland—</i> Bangor Ridge .. (G. A. Barnes)	5.10.39	Over 16	Food Production Scheme. Marketing depots. Saanen Buck. Water supply. Rat Extermination Campaign. Reports of Authorized Persons.
Maidstone- Bourbon .. (I. E. Somers)	11.10.39	23	Correspondence. Food Production Campaign. Yampie Competition. Routine matters.
<i>St. Andrew—</i> Rock Hall .. (Mrs. B. Heslop)	10.10.39	10	Correspondence. Food Production Scheme. Land Settlement Scheme. Minor Matters.
<i>St. Catherine—</i> Bellas Gate .. (Mrs. G. M. Markland)	9.10.39	24	Road. Food Production Campaign. Reports of Authorized Persons. Enrolment of members. Rat Extermination Campaign.
<i>St. Elisabeth—</i> Kilmarnock .. (L. E. Scott)	5.10.39	16	Roads. Correspondence. Rat Extermination Campaign. Loan Bank. Address by Instructor Philips. Food Production Campaign.
Malvern .. (Miss E. I. Blake)	27.10.39	Over 27	Food Production Campaign. Marketing depot. White Yam Competition. Land Settlement. Address by Instructor Lynch.
<i>St. Mary—</i> Baxter's Mtn. .. (R. J. Lawson Ricketts)	17.10.39	12	Managing Committee. Food Production Campaign. Lamp. Roll Call.
<i>St. Thomas—</i> Woburn Lawn .. (I. L. Morris)	13.10.39	..	Food Production Scheme. Roll Call. Land Settlement. Minor matters.

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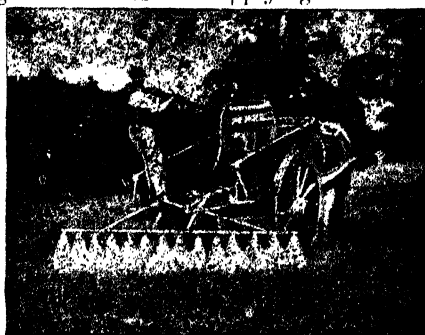
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No. 12.

BOARD OF MANAGEMENT.

THE regular monthly meeting of the Board of Management of the Jamaica Agricultural Society was held at the offices of the Society 10—12 North Parade, Kingston, on Wednesday the 1st. November, 1939, at 11.30 a.m. There were present: Rev. W. J. Thompson, Second Vice-President, presiding, Mr. U. Theo. McKay, Third Vice-President, Hon. G. A. Jones, C.M.G., Director of Agriculture (*ex-officio*), Messrs: R. A. Burke, T. P. V. McDaniel, D. D. Phillips C. L. A. Stuart and Hon. C. A. Little; Messrs: P. St. L. Bacquie, A. P. Hanson and C. C. Hastings, Supervisors of Instructors and the Secretary, Arthur Thelwell.

Apologies for Absence.

Apologies for absence were submitted on behalf of Hons. G. Seymour Seymour, O.B.E., M. H. Segre and A. B. Lowe, Messrs. H. G. Dunkley and W. Harper Watson.

Confirmation of Minutes of the previous Meeting.

Copies of the minutes of the previous meeting having been sent to members, they were taken as read, and on the motion of the Hon. C. A. Little seconded by Mr. Burke they were confirmed.

Matters arising out of the Minutes.

(a) *Nutrition Campaign — Memorandum.*

The following memorandum, copies of which had been issued to members was submitted:—

SOCIETY'S ACTIVITIES IN FURTHERING THE CAUSE OF NUTRITION IN JAMAICA.

Bound up as this subject is with the consumption of the right type of food in sufficient quantities in balanced proportion, the problem becomes almost directly an agricultural one. In a quiet but effective way the Society has already covered much of the ground, and it simply remains for the activities which it has already undertaken in the interest of nutrition to be developed and extended.

2. These activities may be summed up under the following heads:—

(a) Increased production and consumption of more nutritious vegetables.

- (b) Development of live stock, especially small stock, for use as fresh meat and for the production of milk and eggs.
- (c) Popularization of local foodstuffs.
- (d) Propaganda.

3. With regard to (a), the Society encourages special projects in special areas and among Juvenile Branches and Schools. These projects are directed to the cultivation of such crops as

cabbages
cauliflower
turnips
lettuce
spinach
tomatoes and
Irish potatoes,

and popularizing their use as articles of food for the growers themselves.

4. As an instance of this work the Tomato project in Southern Manchester may be cited. Beginning with small plots two years ago, the project has grown to the extent where over 100 acres have been registered for planting this season; and whereas four years ago the consumption of Tomatoes in the districts of Southern Manchester was almost unknown, today it is a regular article in the dietary of the people.

For a long time the Society has been encouraging the rearing by adult and Juvenile Branches of the milch type of goats. This scheme is encouraged by providing improved sires through the medium of subsidies by the Board. In this way small holders and children are educated in the use of goats' milk. This project has met with much success but may be developed and extended by the formation of a large number of Juvenile Branches and the rearing of animals by the members, along the lines followed by the 4H. Club of America.

Keeping of poultry and rabbits has also been encouraged.

These projects have been hampered by

- i. lack of cheap poultry feed, and
- ii. a lack of taste for rabbits' flesh.

As the taste of adults is fixed, it appears to be wise to concentrate all our efforts on Juveniles and to this end it is proposed to increase the number of Juvenile Branches, to reorganize them along Club lines and to initiate all these projects under proper direction and supervision.

5. The Society also endeavours to popularise the use of native foodstuffs. Native cornmeal is sold over the counter through its Seed Department. These activities are capable of further development. Products such as those manufactured from cassava and banana, etc., can be investigated and popularised.

6. Propaganda: From time to time articles on the general question of nutrition, diet, types of food, quality in vegetables and recipes, are published in the Society's Journal.

7. Co-operation: Closer co-operation with the Health and Education Departments (especially with the former — we already co-operate with the latter) is indicated. For instance, if information as to special deficiencies in certain districts was brought to the attention of the Society, projects could be initiated in these districts in an endeavour to remedy the situation.

These projects would have finally to be brought home to the Juvenile population through the schools in a practical form such as by means of cheap lunches.

(Signed) Arthur Thelwell,
Secretary.

(b) Pensions.

The Secretary stated that the First Vice-President who had been requested to prepare a Memorandum had directed him to inform the Board that he had been unable to do anything in the matter as Mr.

Hodges, the Treasurer had been unable to arrange to discuss it with him. He would however, endeavour to have the proposals arranged by the end of the present calendar year.

(c) Assistance to drought stricken area, St. Mary (Islington)

The following memorandum was read and noted:—

In accordance with the instructions of the Board, (vide Minutes of the meeting of October 4th.) I approached the Labour Department and the Parochial Board of the parish of St. Mary and was successful in obtaining the sum of Five Pounds for procuring seeds for the distressed area at Islington.

2. The following supplies have been distributed through the Rev. H. S. Ward and the Secretary of the Islington Branch:—

- 11 bus. Seed Corn.
- 1½ " Redpeas.
- 1 " Cowpeas.
- 1 gross packets Vegetable Seeds.
- 4 bags Potato Slips.
- 1 quart pumpkin seeds.

(Signed) Arthur Thelwell,
Secretary.

Statement of Accounts.

The Secretary said the Statement of Accounts for October was not yet completed.

Communications.

(a) Letter from C.S.O. re Sale of Immature Bananas

The following was presented.

No. 6350/36

17th. October, 1939.

"With reference to your letter No. C.S.O. 46 of the 10th. August, 1939, I am directed to inform you that the Governor in Privy Council on the 9th. October, 1939 in exercise of the power conferred by Section 23 of the Agricultural Produce Law, Chapter 339, made the following regulation — "No person shall offer or accept for export or sell or purchase for export bananas which are so thin and immature as to be unfit for export."

(Signed) A. D. Soutar,
for Colonial Secretary,

This was noted with much enthusiasm, and the Secretary was directed to publish the information in the Journal and in the Press, and circulate this to the Branches. It was also considered desirable that notices should be posted at Railway Stations, recognised buying centres and other prominent places, and that the information should be conveyed to the Inspectors of Produce.

(b) Letter from C.S.O. acknowledging resolution of loyalty

No. 2659/39.

11th. October, 1939.

"With reference to your letter C.S.O. No. 64 of the 21st. September, 1939, I am directed to inform you that a copy of the resolution of loyalty forwarded therewith has been transmitted to the Secretary of State for the Colonies."

(Signed) J. D. Lucie-Smith
for Colonial Secretary.

Reports from Committees.*(a) Special Meeting of Instructors Committee.*

The following was submitted for information of the Board.

INSTRUCTORS COMMITTEE.

A Special Meeting of the Instructors Committee was held on Tuesday 17th. October, 1939, and in accordance with instructions interviewed 10 selected candidates for the position of Supervisor and 30 selected candidates for the seventeen positions of Temporary Agricultural Instructors.

The following appointments were subsequently made:—

Supervisor:— Mr. C. C. Hastings, (Senior Agricultural Instructor)

Instructors:—

R. M. Little	H. A. Rogers
I. A. Rhone	Austin Jobson
O. R. McDaniel	C. G. Llewellyn
A. C. Henriques	G. F. Gayle
L. V. Gray	A. W. Campbell
G. F. Phillips	N. H. Mullings
H. B. McKay	L. A. McNichol
E. A. Lawrence	E. U. McNamee
C. A. Silvera	

(Signed) G. A. Jones, Chairman.

" Arthur Thelwell, Secretary.

(b) Regular meeting of Instructors Committee.

The following was submitted and noted: the Board approved of the financial commitments.—

1st. November, 1939.

TO THE BOARD OF MANAGEMENT.

The Instructors Committee met this morning and report as follows:—

1. Additional Staff—Allocation of districts.

The Committee approved of the allocations made by the Secretary for the newly appointed Temporary Agricultural Instructors.

He reported that the newly appointed Supervisor would be in charge of the Western End of the Island with headquarters in Montego Bay.

2. Reimbursement of Travelling Expenses of new Staff.

The Committee approved of the recommendations made by the Secretary for the reimbursement of travelling expenses for the newly appointed Supervisor and Temporary Agricultural Instructors as follows:

1. It is proposed to reimburse the newly appointed Supervisor at the rate fixed for Supervisors, viz:

Car upkeep — £60 per annum.

Reimbursement of mileage at 4d. per mile.

10/- allowance for continued absence (on duty) of 18 hours from headquarters.

2. It is proposed to reimburse Temporary Instructors at the rate of 4d. per mile flat for the use of motor cars. 8/- per diem for horse and saddle with the usual allowance for absence from their headquarters or duty.

3. Death of Headman Edie.

The Secretary reported the death of Headman Edie and asked for the approved of the Board for the sum of £5. paid to Mrs. Edie for defraying the funeral expenses of the late Mr. P. A. Edie. This was approved.

4. Offices for Supervisors.

Proposals submitted by the Secretary for offices in the Central and Western sections of the Island were approved.

5. Request from the Secretary Loan Bank Committee, St. Ann's Bay that Instructor Atkinson be allowed to serve on their Committee was not approved.

The Committee however decided that Mr. Atkinson could act in an advisory capacity.

6. The Secretary reported that the Lands Department had assumed responsibility for all the Demonstration Plots and that they had been handed over.

7. Applications for Affiliation.

Applications for affiliation from Pear Tree Grove (St. Catherine); Harry Watch (Manchester); Beecher Town (St. Ann) were approved and recommended to the Board for affiliation.

8. Leave of Absence.

Leave of absence was granted to Instructor McLaren from 27th. to 30th. November, and to Instructor J. A. Graham from 2nd. to 4th. November.

It was also decided that the usual Christmas leave should be granted to the Instructors.

(Signed) G. A. Jones, Chairman.

" Arthur Thelwell, Secretary.

(c) Office Committee.

The following was submitted and adopted on the motion of Mr. McKay seconded by Mr. Stuart:—

REPORT FROM OFFICE COMMITTEE.

The Office Committee met this morning and beg to report as follows:—

1. Debts.

A report from the Secretary with regard to the collection of certain debts was made and noted.

2. Journal.

The third Vice-President and the Secretary were appointed to consider and arrange for the printing of one issue of the Journal by another Company, in order to bring the Journal up-to-date.

3. Auditors' Report.

A report from the Auditors with regard to the Society's Account was considered and a Committee consisting of the First Vice-President, Third Vice-President and the Secretary was appointed to confer with the Auditors and make the necessary arrangements.

4. Extract from Minutes.

The Secretary has been instructed to consult the Society's Solicitors as to the advisability of giving a certain Company use of extracts of the minutes of a certain Board Meeting.

5. Food Production.

The Secretary reported that (a) an additional typist and fixtures are to be provided for the Office by the Food Production Board in order to assist with the Food Production Work.

(b) The Committee recommends the employment of a counter assistant at a salary of 15/- per week.

6. Report of Sub-Committee on Office.

The Committee also recommends:

(i) That the approval of the Board be asked for the employment of two assistants for Offices at Montego Bay and Mandeville, at the rate of 30/- per week each to begin on the 6th of November 1939.

(ii) That the necessary expenses in connection with the rental of the Office in Mandeville be borne by the Society if other arrangements for payment cannot be made.

(iii) That the expenses set out in (i) and (ii) be met from the savings on the employment of Headmen.

7. Bankrupt Debtors.

Instructions were given to the Secretary to deal with certain accounts, shown in the Minutes, of debtors who have declared themselves bankrupts.

(Signed) G. Seymour Seymour, Chairman.

" Arthur Thelwell, Secretary.

(d) 4 H Club Committee — Progress Report.

The Secretary stated that the Committee held a meeting on the 30th. October. but the proceedings had not reached a stage where a report could be made. It was hoped however, that a report would soon be made.

Diseases of Plants and Animals: Insect Pests.

(a) Panama Disease of Bananas — Monthly Report.

The Secretary stated that this report had not yet come to hand. Office.

(a) Secretary's Report on Travelling was laid on the table.

(b) Application from Miss Slowley for extension of sick leave — 3 weeks.

The Secretary stated that Miss Slowley had been granted sick leave and had applied for an extension of three weeks. He had referred the matter to the First vice-President who had authorised him to grant the leave on two weeks half pay and one week without pay. She had resumed work.

Mr. McKay moved that Miss Slowley should receive three weeks' full pay, Mr. Stuart seconded, and this was agreed to.

(c) Application from D. G. MacDonald for 5 days leave (sick)

The Secretary stated that this application was covered by a Doctor's certificate and had been approved by the First vice-President.

This was approved.

Competitions.

(a) Application from Cumberland Branch for grant re Yellow Yam Competition.

Letter from the Cumberland Branch in respect to a proposed Yellow Yam Competition was submitted.

The Board regretted that the application for financial assistance could not be entertained.

(b) Application from Devon Potato Growers Association £2 for Potato Competition.

Information regarding the holding of this Competition was submitted and noted.

The Board expressed regret at not being able to make a grant towards the Competition.

(c) Letter from Trinity Ville Branch re use of Show Funds for Food Growing Competition.

Resolution from the Trinity Ville branch suggesting that the amount of £60 at the credit of the Blue Mountain Valley Show Committee be utilized for financing a Competition to further the cause of Food Production was submitted.

The Secretary was directed to inform the Branch that Special conditions for Food Production was afforded by Government and it was not therefore necessary at the present time to undertake the proposed expenditure.

Subsidies.

(a) Application from Watsonton Juvenile Branch for grant for Show.

Letter from the Watsonton Juvenile Branch outlining their activities regarding a Show to take place on the 15th. December 1939, and asking for assistance was submitted.

A grant of One Guinea was authorised.

(b) Application from Good Hope Juvenile Branch for half-cost of a calf was submitted.

The Board regretted that the application could not be entertained as subsidies had to be confined to small stock.

Resolutions from Branches.

(a) Resolutions of loyalty from:—

- i. Mispah.
- ii. St. Catherine Branches Associated.
- iii. Lacovia
- iv. Mt. James.
- v. Clarendon Branches Associated.
- vi. Siloah.

The Secretary was directed to forward these resolutions to Government.

(b) Siloah re appreciation of Government's action against profiteering.

The resolution was noted and the Secretary was directed to forward the same to Government.

(c) Mt. James re Land Settlement.

This Branch requested that the properties of Mt. Daiken and New Garden be acquired for the purposes of Land Settlement.

The Secretary stated that he had forwarded the resolution to the Commissioner for Lands and he had also directed the Branch to get into communication with the Parish Land Settlement Committee.

Mr. Hanson who was a member of the Parish Land Settlement Committee stated that the matter had been recently dealt with by the Parish Committee.

Mr Little said that with regard to Land Settlement many land owners here and there had been giving small portions of properties for cultivation. He did not know if the Board should not definitely ask Government to have matters in the Lands Department speeded up so that the people could get lands instead of depending on these voluntary gifts here and there for food production activities. Some people were of opinion that this new action on the part of large land owners would tend to check the progress of the Land Settlement Scheme. He brought up the matter to see if other members had anything in their minds on the subject.

Mr. Stuart said he would like to support what Mr. Little said. In some cases in St. Mary allocation of plots on a property would be started and when some ten or fourteen plots were taken operations would be suddenly suspended, for what reason he did not know. He thought that where properties were acquired allocations should be made.

Mr. McDaniel asked just how far could the Agricultural Instructors go in connection with advising settlers as to methods of cultivation on these Land Settlements. He thought it was a question that should not be shelved.

Mr. McKay said that as far as he could see, if action were taken by the Agricultural Instructors in advising settlers on Land Settle-

ments regarding cultivation it might lead to some trouble. He thought arrangements could be made to meet cases in future but he understood that the Lands Department had their own overseers whose duty it was to look after the special cultivations that should be carried out on the properties. Until arrangements were made, if the Instructors took action it would mean that two sets of advice would be given and that might lead to misunderstanding.

The Secretary stated that at the outset it was impossible for the Society to have undertaken all the work entailed because their Field Staff was insufficient. There was however, a Co-ordinating Committee which comprised representatives from all departments concerned with the agricultural activities of the Island. He expected that sometime in the future this question would be dealt with by that Committee.

Mr. McDaniel said he felt that the Land Settlement Department should be more concerned with the cutting up of lands rather than with the cultivation of them. He thought the matter to which he previously referred should have immediate attention.

The Chairman suggested that action by the Society might be a bit premature and it might be wiser to watch the situation for a time.

Mr. Little moved that Government be requested to speed up Land Settlement Scheme as aid to the Food Production Campaign.

This was seconded by Mr. Stuart.

Mr. McKay said he did not see that such a resolution could be sent to Government. If Mr. Little specified a district or a parish a request for special attention could be made.

Further discussion disclosed that it was thought desirable that allocation of lands on properties already purchased should not be held up. The fact that a few plots remained unsold on a property should not preclude the opening up of another property some 20 miles or so away.

The Secretary said that in many districts the need existed for small portions of properties to be utilized for Land Settlement. He was endeavouring to get reports from the Agricultural Instructors with regard to this, and the reports would be submitted to the proper authorities for consideration.

Mr. McDaniel said the conditions mentioned by Mr. Little fortunately did not exist in St. Catherine where the enormous amount of work entailed and was being carried through was much appreciated.

On the assurance of the Chairman that the views of the Board with regard to the matter would be conveyed to Government Mr. Little withdrew his motion.

(d) Lacovia re Establishment of Nurseries.

This resolution conveyed the request that investigation in the area be made with a view to establishing nurseries. The special crops referred to were, canes, limes, pineapples and other citrus, and also that some organized market be investigated for cashew nuts.

The Board agreed that this should be done.

Mr. McKay said the Secretary would do well to make enquiry as to the possibilities of marketing cashew nuts in Canada. He said there was also the preserve made from the fleshy portion of the fruit, the "banana," which might also be considered.

Mr. McDaniel asked for information regarding the Cashew Nursery in Clarendon and the Secretary stated that this had been very successfully worked and plants had been distributed all over the

country from that centre. It had proved so successful that the Board had agreed that the nursery should be re-started and it was now in full swing. He was unable to report on the progress of the plants sent out from the nurseries but he had asked the Instructors to report on them.

(e) Wood Park re Treatment of Panama Disease.

The Wood Park Branch requested that recommendations be instituted to obtain a cessation of treatment with crude oil for Panama Disease of bananas and that scientific opinion outside of the Government Service be asked for in this matter.

The discussion which followed revealed that the intention of the resolution was not to criticize the action of Government in the matter but rather to ask for a further revision of existing views on the subject.

It was decided that the matter should be referred to Government on the lines taken in the discussion.

New Members.

On the motion of Mr. McKay seconded by Mr. Phillips the following were elected to the membership of the Society:—

H. S. Vermont, Highgate.

A. A. Blanch, Annotto Bay.

N. P. Clarke, The Cottage, Islington.

W. E. Sinclair, Mtn. River Estate, Watermount P.O.

Miss Linnette Abrahams, Morgans Valley, Chapelton.

Miss Blanch Hopley, 12 East Ave., Camperdown, Half-Way-Tree.

A. A. Burgher, 9 Homestead Road, Windward Road.

Errol C. Henriques, 15 Red Hills Road, Half-Way-Tree.

Miss C. Maxwell, c/o Messrs. Nathan & Co., Kingston.

Stephen Wallaston, Lime Hall.

William Bryan, New Hall Est., Bog Walk.

Other Business.

(a) Food Production.

The following memorandum on the progress of the Food Production Campaign was submitted and noted.

FOOD PRODUCTION PROGRESS REPORT.

a. Staff.

(i) Seventeen additional Agricultural Instructors have been appointed and allocated to districts throughout the Island. They will begin work on the 1st November.

(ii) A Supervisor has also been appointed and allocated to Montego Bay to supervise and operate the County of Cornwall.

b. Planting Material.

Sources of planting materials are being registered.

Fairly large supplies of Potato slips and Cassava sticks have been distributed all over the Island, mainly from the Prisons Department.

c. Seeds Department.

The Sales for the period September 1938, was £527, and for October £542.

For the current year the sales for September are £702, and for October — 2 weeks £564. Large supplies of seeds are now on order.

The following purchases of seeds have been made:

Class A.	Red Peas	718	bushels
	Cow "	42	"
	Black Eye Peas	120	"
	Seed Corn	250	"
	Total	1,130	"

Class B.	Cabbage	500	lbs.
	Turnip	300	"
	Carrot	250	"
	Beet	175	"
	Beans and Peas	465	"
	Other seeds	227	"
	Total	1,917	"

In Class A there has been an increase on our normal supplies of 90% and in Class B 50%.

d. Propaganda.

(i) A number of meetings of Branches Associated have been addressed and the scheme discussed and explained.

District meetings have also been held for further explanation and registration.

(ii) Leaflets on the cultivation of quick crops have been written and are now being printed.

e. Registration.

Registration has proceeded most satisfactorily and most of our members are now signed up. The second stage is reached where non-members are being persuaded to register. These are not signing up as readily as members of Branches.

f. Agricultural Credit.

Applications have been received for the formation of a large number of Loan Banks.

Eighteen such applications are being investigated.

ARTHUR THELWELL.

Secretary.

26. 10. 39.

The meeting then adjourned to Wednesday the 6th. December, 1939 at 11.30 a.m.

THE NEW YEAR.

THE Society wishes for all agriculturists a prosperous year in 1940. Nineteen thirty-nine was full of woe — drought, war, storm. It is the hope of everyone that better days are ahead; all our agricultural activities point to this. May we all realize the beginning of these better days in 1940.

Editor.

Celebrate Christmas



the same **"Old"** way:

Drink

"WRAY & NEPHEW'S"
BLACK SEAL
& APPLEMONY

A MESSAGE
from
His Excellency, the Governor
President of the J. A. S.

WE print below, with pride and pleasure, a most encouraging Message from His Excellency the Governor.

This message was sent to us by the Governor in response to a request by the Secretary of Society for a few words of cheer to members.

As is well known the Governor is President of the Society and takes a great deal of personal interest in its affairs.

Editor.

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YOU have asked me to send, as President of the Jamaica Agricultural Society, a message of encouragement and cheer to members who have suffered so severely in the recent storm.

I feel that there is little left to say. All members know of the action taken by the Government in making funds available through the Loan Banks for rehabilitation of damaged areas. That is the most practical way I could devise of showing sympathy and of helping people to help themselves. The excellent memorandum which you circulated so promptly was another contribution to the same end. Indeed, the recent difficulties due to the storm and the need for readjustment of our agricultural economy have brought home to me more clearly than ever the great part which the Jamaica Agricultural Society is playing, and the greater part it is destined to play in the development of Jamaica.

It is my intention to make increasing use of the beneficent activities of the Society, to broaden its scope and enlarge its spheres in order that it may help with land settlement and with every form of agricultural progress. The close liaison and the friendly co-operation of the Department of Agriculture and the Jamaica Agricultural Society should be jealously guarded so that the Jamaica Agricultural Society may be guided by the Department and may supplement its activities without overlapping.

I wish all members an early and a complete recovery from the damage of the storm.

(Signed) A. F. RICHARDS.
Governor.

King's House,
Jamaica,
2nd December, 1939.

4 H CLUBS.

MEMBERS who have been following the development of the Society's work must by this be well acquainted with the movement that is on foot for the re-organization and extension of Juvenile work in Jamaica.

It will be recalled that a full discussion on the possibilities of 4 H Club work in Jamaica took place at a meeting of the Board in October 1939. The Board then appointed a Committee to consider the proposals. On the following pages are set out the report of this Committee and a complete memorandum recommending that work be immediately started.

Government has been approached and asked to provide part of the necessary funds.

Editor.

REPORT OF COMMITTEE ON PROPOSALS FOR ORGANISATION OF 4H CLUBS.

NOTE: Consequent on Memorandum on Juvenile Development considered by the Board, and on the discussion that took place at the meeting of the Board on Wednesday the 4th October 1939, the following were appointed a Committee, with power to co-opt, to report to the Board.

The Three Vice-Presidents,
Hon. & Rev. J. W. Maxwell,
Messrs. H. G. Dunkley,
C. L. A. Stuart,
T. P. V. McDaniel,
J. W. Howe,
O. P. Martin, and
W. A. James,
Secretary of the Society.

Three to form a quorum.

General.

Your Committee beg to report as follows:

- (i) Two meetings were held:
the first on the 30th October, 1939,
the second on the 13th November, 1939.
- (ii) Your Committee considered the Memorandum of the Secretary of the Society. After a review of Juvenile work as it exists at the present time, and consideration of its further development, it was concluded that work throughout the Island among young people should be extended and developed along Club lines, as set out in the Memorandum.

They were strongly impressed with the great possibilities of such a movement for improving the work and

influence of the Jamaica Agricultural Society directly, and indirectly to assist in the development of the people of the Island along right lines.

1. It is, therefore, recommended:

That the work of Juvenile Branches be re-organized, improved and extended along the lines set out in the Memorandum as amended.

2. **Finances.**

Approval is expressed of the financial proposals as set out in the Memorandum, and it is recommended:

That the necessary steps be taken to secure funds accordingly.

As, however, this would involve loss of valuable time, and as your Committee feel that it is important that an immediate start be made, they are of the opinion that additional means of securing funds be exploited immediately.

With this in mind your Committee recommend:

That Government be asked for an annual subvention of £1,000; and in view of the fact that the Jamaica Welfare Ltd. is interested in work of a similar nature, that their Board of Directors be approached and asked to contribute the sum of £1,000 per annum.

3. **Administration.**

Having regard to the proposed sources of immediate income, your Committee recommend:

That a Committee be set up to operate the scheme.

This Committee, to be called the Central Managing Committee, shall have full administrative and executive authority, and shall report to the Board of Management and the Board of Directors of the Jamaica Welfare Limited.

Recommendations as to the personnel of the Committee are set out in the amended Memorandum, which is attached to this Report, (Vide page 3, Organization—Supervision.)

With regard to the number of personnel to compose the Central Managing Committee, the following record of the Minutes is set out for the information of the Board:

"The question of Management and Supervision was fully debated. Some members were strongly of the opinion that the Managing Committee should be limited to seven members."

4. With regard to the allocation of the proposed income, your Committee recommend:

That this be considered under the following heads:

- (i) Salary and Travelling Expenses for at least two whole-time Organizers in the Island—one man and one woman.
- (ii) Subvention for assisting Club Activities, such as Conferences, Rally and Achievement Days and Training.
- (iii) Literature and Propaganda.
- (iv) Subvention for Record books, Stationery and Printing.
- (v) Clerical Assistance.

5. Your Committee are of opinion that the question of sending an Organizer to Canada and the United States of America for a training tour should be considered without delay, and that in connection with this, efforts should be made to secure a special grant from the Carnegie Trust as suggested by the Director of Agriculture, in his letter dated 21st August, 1939.

6. Title.

It will be observed from page 2, of the Memorandum, that the name recommended is:

“Four H Clubs of the Jamaica Agricultural Society.”

The question of a name was considered at length and it was decided to alter the name “Juvenile Branches” to:

“The 4 H Clubs of the Jamaica Agricultural Society.”
on account of the great advantages to be gained by affiliation with 4 H Clubs in the United States of America.

The Committee took into consideration letters from the Director of the 4 H Club Organization of the United States of America, who has agreed to the use of the name and possible affiliation and has promised valuable assistance with regard to Literature as well as help in connection with any selected Jamaican Organizer who may be sent to the United States for training; also a letter from Mr. John Findlay, who was responsible for bringing the proposal to a head by submitting specific letters to the Director of Agriculture, recommending the inauguration of these Clubs; also a letter from Miss Jessie L. Erwin, Assistant Organizing Officer of the Jamaica Welfare Limited, who not only recommended the introduction of these Clubs but stated that Rev. J. R. Hargreaves of the United States of America, a brother of the late Dr. Hargreaves of Mandeville, who has a thorough knowledge of the working of 4 H Clubs would be willing to visit the Island in order to assist in the organization of the work.

7. All other recommendations set out in the revised Memorandum, were unanimously agreed to and form part of this Report.

8. Your Committee co-opted Mr. D. T. Girvan, of the Jamaica Welfare Ltd., whose services were highly appreciated.

(Sgd.) J. W. Howe,
W. A. James,

(Sgd.) H. G. Dunkley,
O. P. Martin.

(Sgd.) Arthur Thelwell, (Chairman)
D. T. Girvan (Secretary)

MEMORANDUM

We should set ourselves to develop and extend the scope of the work of the Jamaica Agricultural Society and a first aim should be the increase of membership to at least 50,000.

2. The inveiglement of adult members into joining Branch Societies as a policy for increasing membership has not been successful, and, although it should not be abandoned, it cannot be relied upon as the main policy.

3. In order to extend our work and secure this increased membership, we should set ourselves to do some entirely new and specific work. The development of the Juvenile Movement suggests itself. The movement has grown rapidly and is capable of extensive development. At the present time we have 74 Branches and this number should be increased until we have at least one Branch in each district.

The whole Movement should then be re-organised and the work improved and extended. For instance, it is suggested that the name of these Branches be altered and the work developed along Club lines. In this way the younger members of country communities would be trained to love the land, to be efficient agriculturists, to take an interest in their own development along agricultural and social lines, and eventually be drafted into the membership of the Society and developed into good citizens.

The results attained by the work of adult Branches in a smaller way would appear to justify the hope that a larger movement would meet with similar success.

4. The scheme requires money to operate it. Primarily, funds must be found for the training and employment of personnel, and it appears to be feasible to ask Government for a special annual subvention of £1,000 for the work. It is high time, however, that the Society endeavoured to make some financial contribution of its own to work of this nature.

It is suggested that we endeavour to raise a substantial sum of money to be invested and the interest used specifically for the work. To endeavour to do this, I propose the following:—

- i. Amend the rules for members so as to create Life Members and endeavour to secure 1,000 of these at £5 each, say £ 5,000

ii. Solicit donations from, say 10 persons and Companies, asking them for the sum of at least £500 each, say	£ 5,000
iii. Ask the present Direct Members to contribute the sum of £1 each, say 600 at £1	£ 600
iv. Ask each Branch to contribute £2, say 400 Branches at £2	£ 800
v. Ask Government to contribute an extra subvention from General Revenue of	£ 5,000
vi. Endeavour to secure from the Colonial Development Fund, say the sum of	£15,000
Total	£31,400

NOTE: With regard to i., this will need a special campaign and personal contact. £5 is the lowest sum that should be asked for, but some Life Members might be willing to donate a larger sum.

5. The Scheme will need the backing of the Board of Management and the Society generally, and should be launched after the details have been submitted to and approved by the Branch Societies and Direct Members.

7. I shall be pleased to have your observations on the scheme.

(Sgd.) Arthur Thelwell,
Secretary.

TITLE — The Clubs shall be known as 4H Clubs of the Jamaica Agricultural Society.

COLOURS — The Colours shall be GREEN & WHITE.

MEMBERSHIP — Membership in the 4H Clubs shall be open to boys and girls under the age of 21 years.

MOTTO — The Motto for the 4H Clubs shall be "To Make the Best Better". The emblem shall be a four leaf clover with the letter H in each leaf. The four H's shall stand for:—

Head for clearer thinking
Heart for greater loyalty
Hands for larger service
Health for better living

ORGANIZATION

Supervision—The clubwork shall be under the supervision of a Joint Committee, with full administrative and executive authority, of The Jamaica Agricultural Society and the Jamaica

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Welfare Ltd., co-operating with other agencies such as the Department of Agriculture, the Department of Education, and the Medical Department.

This Committee will be known as the Central Managing Committee, and will consist of:—

2 Members of the Board of Management of the Jamaica Agricultural Society.

The Secretary of the Jamaica Agricultural Society.

2 Members of the Board of Directors of the Jamaica Welfare Limited.

The Co-operative Officer of the Jamaica Welfare, with power to co-opt not more than three others.

The Committee will appoint its own Chairman and Secretary five to form a Quorum.

Local Leaders—Each club shall be under the direct supervision of a Local Leader. The duties of the Local Leader shall be to assist the club-members in the work of the project which the club is undertaking, and to act as an adviser, encouraging the members to do the actual work themselves. The Local Leader should be present at all meetings of the club.

The Club A HI Club shall consist of at least 8 members below the age of 21 years who are enrolled in one project.

One individual may be a member of two Clubs with separate projects, e.g. Livestock and Vegetables.

Full scope will be given to individual effort, but with co-operative action. There will be Co-operative purchase of Seeds, Fertilizers and Tools, and co-operative projects wherever possible.

Officers The members of the club shall elect from their own members each year the following officers: (a) President, (b) Vice-President, (c) Secretary, (d) Treasurer, who may also be Secretary. These officers shall be responsible for conducting all meetings of the club. Meetings can be held as often as desired but should be held at least once per month.

Records—Every member enrolled in a project shall keep an accurate record of the work done. The records shall be kept in a book which will be supplied for the purpose, and shall be submitted to the person in charge of Club work in the Island when the project is completed. Such records shall be used in determining the results of the year's work for the club.

Each Club will also keep records such as Purchases and Sales Books, and Simple Accounts.

CLUB FINANCE

(a) Self-Help and Co-operation will be the basis of the work. Members may purchase shares (say a minimum of 3d

per share, payable at a minimum of $\frac{1}{4}$ d per per week). To supplement this, it is desirable to raise funds for the club by means of plays, concerts etc., in which the members themselves take part.

If the members cannot raise money, the activities of the Club should be curtailed, to impress on them that anything obtained must be worked for. In special cases, however, a loan may be granted to a club by the Central Managing Committee, on terms to be arranged, in order to educate the members in wise borrowing, punctual repayment and proper business methods.

(b) Club funds will be kept in the nearest Branch of the Government Savings Bank in the names of three parties (viz. Leader, President and Treasurer) with two having the power to withdraw.

(c) There will be a monthly audit of accounts by a reliable adult.

CLUB ACTIVITIES

The activities in which the club is to participate should be planned at the first meeting of the club year. Such activities will be (a) District, (b) Parish, and (c) All Island.

DISTRICT EVENTS.

1. **Conference of Club Leaders**—This is a meeting of the leaders of the various clubs in the District at which time club activities in the district are discussed. Such conferences are of great help to leaders, especially those who are new to the work, as it allows for an exchange of ideas and experience.

2. **Rally Days**—At Rally Days all the club members in the District attend. This gives the members an opportunity to meet the other club members in the district. Such Rally Days usually take the form of picnics, and sports in which all members take part.

3. **Tours**—Tours are usually taken by several clubs in the district, when they visit the projects of the various members. Visits to some of the better farms in the district can also be made. This gives the members an opportunity to see what others are doing, and makes it possible for them to compare the progress of their work with that of the other club members.

PARISH EVENTS.

In the case of parish events all clubs in the parish take part. Parish events might include the following:—

1. **Achievement Days**—This is really a show at which the club-members exhibit the work of **their** project to show what

they have achieved during the year. It is usually held at the end of the club year, and is the final event before the All-Island Show.

At the Achievement Days, each club enters a demonstration team in competition with the other clubs. The team puts on a demonstration of some phase of the work it has undertaken during the year. The winning boys team and the winning girls team from each parish, will later compete for Island wide honours. The best animals, produce or other articles which the club-members exhibit, are later exhibited in the All Island Show.

2. Club Camps—A Camp may be held annually for all the club-members in the Parish. The cost of such a camp is to be kept as low as possible, in order that as many club-members as possible can take part. The cost of sending the various members to the Camp is often paid by the clubs putting on a concert or play. The Camps are strictly supervised, and are usually one week in duration.

Special Camps for selected members from the various clubs may be arranged for Conference and Training, all or a portion of the expenses to be borne by Central Funds.

3. Participation in Special Day or Patriotic Celebrations—

Club-members can take part in such celebrations as a Club, thereby assisting in the work and bringing the activities of the club to the attention of the public.

ALL ISLAND EVENTS.

In the all Island Events, only the best Club members are allowed to compete, and selected exhibits sent in for competition. It should be the goal of every member to produce a quality of product such as will be allowed to compete in this event.

1. All Island 4H Club Show—At this show the member's produce which has been selected at the Parish Achievement Day is exhibited.

2. Health Contest The healthiest girl and boy are selected from the clubs at the Parish Achievement Day and are entered in the All Island Show to determine the healthiest boy and girl club-member in the Island. In this way the health side of club-work is emphasized, and the members encouraged to maintain good health.

3. Sale of Produce—On the last day of the All Island Show the produce of the members may be sold co-operatively. The funds from such sale go to the member through his Club. The member may use the money to purchase stock and materials with which to commence the project to be undertaken for the next year.

4. **Short Course** The prize winning boys and girls from the parish shows are awarded a trip to the Short Course which is usually one week in duration. Such a Course might be held at Kingston each year, and would consist of instruction in club-work, trips to various places of interest, games and competitions, etc.

PROJECTS.

The activities of the Clubs and Club members have been outlined. The following are some of the projects which might well be undertaken by the boys and girls in All Clubs in Jamaica:—

Agricultural Projects.

Pig (3 years)	First Year --- (Fat Pig)	Members feed a pig from weaning to market weight.
	Second Year --- (Bred gilt)	A bred gilt is raised from the time she is bred until she farrows.
	Third Year --- (Sow and Litter)	This is a continuation of the second year's work, and consists of raising the sow & litter.
	Second Year --- (Dairy Heifer)	The members raise the dairy heifer to 2 years of age.
Goat (3 years)	Third Year --- (Bred Heifer)	The heifer is bred and cared for until she calves.
	Fourth Year --- (Dairy Cow)	The heifer is cared for from time she calves until she stops milking, or freshens again.
	First Year --- (Young Kid)	The member raises a well bred kid for the year.
	Second Year --- (Bred Doe)	The kid raised during the first year is bred and cared for until she kids.
	Third Year --- (Doe & Kid)	The doe and her kid are raised for the year.
Poultry--(2 yrs.)	First Year --- (Poultry Brooding)	The member starts with either a setting of eggs or some baby chicks, and raises them until the pullets are laying.

Second Year-- The member raises the flock
(Egg Laying) paying special attention to egg
production.

Rabbit--(2 yrs.)--First Year -- Raising doe to breeding age.
(Young Doe)

Second Year-- Caring for doe from breeding
(Bred Doe) until she drops a litter.

Beekkeeping--(1 year)--Keeping at least two colonies of bees.

Crops.

Potato--(2 yrs)--First Year -- Plant a plot of potatoes at least
25' x 25' using selected seed.

Second Year-- Plant a plot from seed grown
in the first year.

Vegetable Garden--(1 year)--Plant a vegetable garden of an
area at least 25' x 25'.

NOTE:--Girls may also take Vegetable Garden Project and com-
bine it with the Canning Project.

Dairy--(4 Yrs.)--First Year - - The member starts with a
(Dairy Calf) young dairy calf and cares for
it for the year.

Corn--(2 years)--First Year -- Plant an area to corn of at
least 30' x 60'.

Second Year-- Plant a similar area from seed
selected from the first year's
crop.

Sweet Potato--(1 year) · Plant a plot at least 30 x 60'.

Yam--(1 year)--Plant a plot at least 30' x 60'.

Peas--(1 year)--Plant a plot at least 20' x 20'.

Home Projects For Girls.

Food--(3 years)--First Year -- Simple cooking.

Second Year-- Meal planning, and the use of
locally grown foods.

Third Year-- Nutrition.

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Clothing—(3 yrs.)—First Year — Making simple garments.

Second Year— Making school costume.

Third Year— Making wardrobe.

Home Improvement Project—(2 Years)—First Year—Bedroom improvement.

Second Year— Improvement of home conditions.

Canning—(2 yrs.)—First Year — Principles of canning and preserving.

Second Year— Canning and preserving meats, vegetables and fruits locally grown.

This project can be combined with the vegetable gardening.

OBITUARY.

MR. R. P. Simmonds, another stalwart of the Society passed away on Sunday the 26th November 1939. Mr. Simmonds was intimately connected with the Society for a number of years. He served on the Board of Management and was at one time one of its Vice-Presidents.

Since he retired he maintained keen interest in the work and development of the Society. High appreciation of his sterling work and worth is hereby recorded.

SICKNESS OF PIGS.

The Government Senior Veterinary Officer reports as follows, with regard to a visit which he made to St. Thomas to investigate the death of some pigs:

"This particular hog died suddenly during the previous night. The autopsy indicated that death was due to obstruction of the principal blood vessels supplying the Liver and Intestines by minute worms analogous to worms which cause embolic colic of horse kind.

"I learnt from enquiry that several pigs had been lost during the recent heavy weather, particularly those in sties. Such mortality is unavoidable in severe weather conditions, unless owners have the money to erect satisfactory shelters for their pigs and take steps to do so prior to advent of heavy and continuous rains."

Attention is especially called to the necessity for erecting proper shelter for pigs especially during bad weather.

Editor.

FOOD PRODUCTION

THE storm dealt a severe blow to our efforts at Food Production. Most of the early plantings of peas were either completely lost or seriously damaged. A substantial portion of areas in these crops has, however, been replanted.

Good progress is taking place in the registration of growers registered.

Returns up to the 6th December show the following acreages registered.

	Acreage		Acreage
Corn	7772	Sweet Potatoes	3561
Blackeye Peas	470	Irish Potatoes	325
Congo Peas	2745	Pumpkins	1047
Cows Peas	1744	Yam (Yellow)	2233
Red Peas	2950	Yam (White)	279
Peas & Beans	1242	Yampies	199
Ground Nuts	37	Cassava	3515
Rice	82	Cocoas	2673
Negro Yams	1281	Baddoes	372
		Plantains	120

It is a big task fixing up the registration cards, but this is being done with all possible speed, and the cards will be distributed soon through Agricultural Instructors.

If the campaign is to be a success, it needs more than mere registration. It is necessary for growers to get down to work and endeavour to carry out promised plantings. All those persons who have pledged their word to grow certain areas of crops must now set about making good their promise.

If we are to judge by the large demand for and sales of seed, large extra areas must by this be planted out.

There is a feeling, however, that quite a number of growers are hanging back waiting for lands and loans. The loan arrangements are going ahead as fast as is humanly possible. New Loan Banks are being formed in many districts while the older established Loan Banks are being asked to devise some means of meeting the urgent situation.

The question of providing lands is also receiving careful and speedy attention, but this is a big matter and cannot be solved overnight.

This reminder to go ahead with the work is addressed particularly to those growers who have a plot of land however small. They should go ahead and endeavour to produce something. That vacant lot on the holding however small it be, must be cleaned up and planted out with some kind of crop.

It must be remembered that this is our contribution to help win the war and that we must be prepared to make some sacrifice. This sacrifice is in the nature of putting in extra hours of work. That extra half hour in the mornings or in the afternoons and the extra time which used to be spent in the village, or that extra day's visit to

the towns must now be used for work in growing food crops. Those persons who have always planted fields must now plant bigger fields; those who have never planted before must now plant a field of some sort however small. It is no use our holding back and finding excuses for not going ahead. There is not a small farmer who cannot do something extra in the interest of Food Production. He might grow a few more vegetables, keep a few more chickens, an extra goat, an extra pig, keep some rabbits, cultivate an extra square or even a half square of land.

Where it is possible for growers to get together and work in batches, they should be organized at once. In this way District Branches could perform useful service by forming Food Production Vigilance Committees to keep in touch with the progress and to encourage members. Growers might be divided into groups for undertaking some special form of Food Production.

The Livestock end of the work is progressing favourably. In this Journal an article, on the proposed establishment of Stud Stations, is published. Officers of the livestock branch have been addressing meetings and explaining the proposals. It will not be possible for a Stud Station to be placed in every single district, but arrangements will be so made that every district will be served.

This Food Production Scheme is quite the biggest thing ever undertaken in our agricultural history, and those who have not yet joined in should set about registering themselves by seeking out the Instructor, having the scheme explained to them and signing up for growing extra areas of those food crops which are suitable to their districts.

Our Food Production effort is based on the necessity for supplying our own needs and contributing to the cause of the Empire in this time of serious crisis. We must all join hands and heart in an endeavour to bring success to the scheme. This is a unique opportunity for making a business of our duty.

Those who have already signed up must get down to work at once and set about growing the crops for which they have registered.

A. T.

PRICES FOR FOODSTUFF.

MANY growers are under the impression that prices have been fixed by the Food Controller for all foodstuff including ground provisions. This is not correct.

The sale price for Red Peas has been fixed and the buying price of corn stabilised; but other provisions such as yams, cocoes and plantains have not been controlled.

Growers are getting mixed over the list of guaranteed prices issued by the Food Production Board. The prices set out on these lists are the *minimum* prices which the Food Production Board will pay for foodstuff, and are not prices at which growers will be asked to sell these commodities in the open market.

Up to the time of writing provisions and vegetables have not **been controlled.**

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JAMAICA.

A LECTURE.

By W. H. Edwards, D.I.C., F.R.E.S., Government Entomologist.

What Planters can do to Minimise Damage Usually
Caused by Pests Attacking Vegetables and Other
Food Crops.

EVERYONE of us has this season given special attention to the production of food crops on a much larger scale than in previous years.

Government has already done everything possible to promote and to encourage projects in that connection.

Distribution of planting materials has been organized by the Agricultural Society and it has been arranged that planters will have no difficulty to find a market and remunerative prices for their crops.

The "enemy" now compels you to do what wisdom indicated should have been undertaken since many years, i.e., that Jamaica should produce all or the greater portion of the food needed by its population.

In many countries planters have seen their crops destroyed, or now live with the apprehension of seeing them destroyed, by human foes. In Jamaica we are in a privileged situation: the navy, gallant armies and air forces are protecting very effectively ourselves and our belongings from any such risks. We have of course to defend our crops from many enemies; but our task is an easy one, as the attack is only from insects and diseases, and it is only when nothing is done to keep them in check that they will do serious damage.

I am just back from the country parts where I have spent many days advising and showing people how they can, by means of scientific methods protect their crops at small cost and in very effective manner. I am here to-night to explain to you the principles underlying methods of pest control on the field scale.

In Jamaica many people are under the erroneous impression that war against insects necessitate the use of expensive instruments and of dangerous poisons. They like spectacular effects and the thrill of handling poisons.

I shall this evening endeavour to explain that with regard to pest attacking food crops, insecticides are not often necessary, and that without instruments or chemicals we can do much to reduce risks of seeing our crops severely damaged by insects.

In Jamaica as in every other part of the world plants are attacked by insects. In this Island however we have relatively few species of destructive pests and if reasonable precautions were taken to protect the crops it is certain that damages occasioned by injurious insects would be greatly reduced.

Though planters can always obtain advice from the Agricultural Officers stationed in their districts and also from the Technical Officers of the Department of Agriculture, they must bear in mind that action regarding pest control in their fields should be taken by themselves. Government Institutions can only intervene in cases where a new

pest has been introduced and when its further spread would have disastrous effects. In the case of common pests which are found all over the island, their control and destruction concern individual growers where crops are affected, and the measures of control to be applied should be considered as part of routine agricultural practices always necessary to raise crops with profit.

A good planter has to be, to a certain extent, a 'bug hunter'. To apply methods of control successfully and economically he has to know what his insect enemies are, how they feed and live and where they breed, before they attack his crop, and during what seasons and under what circumstances this is likely to occur. To acquire such knowledge is not difficult because each crop is only attacked by few species of destructive insects and furthermore because amongst the species of insects which are known to affect a crop only a few in each district reproduce themselves in destructive numbers. You will find that the number of species against which a planter has to take precautions in a given area can be counted on the fingers.

There are several reasons why control of pests affecting minor crops is not carried out in Jamaica as effectively as is desirable. We know that planters in remote districts sometimes have great difficulty in obtaining the materials, or timely advice necessary to control an insect outbreak. The needs of such planters are not being overlooked. The number of Agricultural Instructors has been recently greatly increased and everything possible is being done to organize sale of insecticides and loan of instruments by your Society.

There are however other difficulties of a psychological nature which you alone can improve. You will realize that in spite of every facility which may be given, little can be achieved unless the planter is actively willing to help himself.

Without unreasonable expense or trouble planters can always reduce the effects of outbreaks of pests in their fields and also prevent infestation of crops when they are growing and while they are stored.

To make clearer how this can be achieved I shall begin by explaining how **without insecticides or instruments** growers of food plants can minimize risks of having their crops infested.

After we shall have outlined how selection of planting material, field sanitation, rotation of crops and other proper methods of cultivation help to eliminate insect pests, we shall deal in turn with each first crop, showing you specimens of the insects which usually attack them and explaining what measures of control can be applied in every case.

I shall afterwards invite you to ask questions and if you desire further information, I shall be glad to discuss, before this meeting ends, any specific problem in which some of you may be particularly interested at present.

Selection of Seeds and of Cuttings.

You are all aware that from the purely agricultural point of view selection of seeds and cuttings which will give strong plants and heavy crops is advisable. It is furthermore imperative that no seeds or cuttings carrying diseases or which are infested by insect pests should be planted as they would disseminate destructive organisms in the fields.

For instance peas and beans infested by weevils should never be used for planting even after they have been fumigated, because although fumigation will kill adult weevils their eggs and grubs inside the grain, will be carried into the field producing other weevils that will infest the new crops.

Cassava sticks or yams infested by 'lice' (scale insects) and cocoe heads with 'salpeter' also should never be used for planting.



Beetroot with malformations
caused by Eelworms.

Selection of Seedlings.

In Jamaica the most serious pest which can be disseminated by means of unhealthy seedlings are minute worms which attack the roots of plants. These worms, called nematodes, which live in the soil, penetrate into the roots of plants causing malformations, which to a great extent prevent the plant from obtaining nourishment from the soil. Infested plants need plenty of manure and of water to be kept alive and even if the soil is rich, such plants remain anaemic or dwarfed and yield but very poor crops.

Once these eelworms have entered into the roots of a plant that plant cannot be cured; it is therefore essential to prevent infestation. If infested seedlings are set out in the field the soil of the whole field will, soon after, become alive with eelworms. You may then lose the

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whole of the standing crop and furthermore you will not be able to grow other susceptible crops in that field.

You must therefore be very careful not to plant seedlings carrying this pest. To make certain of this, when you buy seedlings, or are about to transplant those you have grown yourself, uproot a few of the young plants, wash the soil carefully so as not to break their roots and examine them. If some of the roots are swollen and show gall-like malformations, do not use a single seedling from the seed bed or seed boxes where they were growing.

To obtain seedlings which will not carry eelworms only soil free from eelworms should be used in the nurseries. Such soil can be obtained in woodlands or even from pastures. If such soil cannot be obtained, bake the soil you have so as to destroy all organisms living in it. This can be easily done by removing from the site of the seed bed, the top layer of dirt, heaping this on the sides of a shallow trench. A layer of dry wood and leaves is then placed into the trench and lighted, and the dirt which had been removed is scattered in thin layers over the burning wood so that it is slightly baked. When that layer of burnt soil has cooled it is mixed with the ashes and levelled and the next day the seeds can be sown therein.

I strongly recommend such treatment of the soil for growing seeds of cabbage, cauliflowers, beetroot, tobacco, tomatoes, garden egg and all other plants which as seedlings are very susceptible to being infested by eelworms, or destroyed by damping off disease, by millipedes or caterpillars which always infest soil containing leaf mould or farmyard manure.

Preparation of the fields for planting.

Whenever possible fork or cross plough your fields about two months before they are to be planted. This will kill 'Macaca worms' (white grubs) and also chrysalis of caterpillars which are always found in the ground and which, unless destroyed, would hatch into moths producing those hordes of caterpillars which after the rainy season attack growing crops.

Utilization of insectivorous animals to help to clear the land.

Whilst forking the lands you will find black birds gathering in the field. Do not chase them as they are feeding on the insects which have been brought to the surface.

The bull frog is another valuable auxiliary. Consider him as a friend instead of killing him because he is clumsy and ugly. If you want to be convinced how useful a frog is, kill one, open its stomach and look what it contains. You will find slugs, may beetles, fiddler beetles, crickets and many other pests that would have attacked your crops.

Nature has given us wild birds and frogs to protect our plants. In addition to their help we can use our own domestic animals. Run your pigs in your ploughed fields: they will eat any amount of slugs and snails and also unearth and eat grubs and debris of previous crops which carry diseases of insect pests which unless destroyed would attack

future crops. Fowls and turkeys can also be usefully employed to clear the ground of worms and caterpillars.

If after you had reaped the previous crop you neglected to clear the ground of all debris of plants and you now intend to replant do this clearing without further delay. This is particularly important in the case of sweet potato, cabbages and tomatoes. Stray plants are always likely to harbour destructive pests which would be carriers into the new plantations.

As a general agricultural practice, crop residues should, as far as possible, be gathered and destroyed as soon as a crop has been reaped and if practicable, successive plantings of the same crop should not be made on the same plot or on closely adjacent areas.

These precautions will greatly reduce risks of heavy infestation by destructive pests.

Precautions to take when planting.

Keep the soil as free as possible from weeds during one month or even longer before you are going to put in the seeds or seedlings, but stop weeding one or two weeks before sowing. In Jamaica it is not wise to sow grain in fields on which there is no vegetation at all, because the time when the seeds sprout co-incides with periods of greater activity of common pests which under natural conditions feed on rank vegetation. An outbreak of even short duration of army worms or cut worms for instance could annihilate a field of young corn if the pest finds nothing else to feed on. To sow the seeds, clean up narrow strips, and as the crop grows widen gradually and weed the strips until all the weeds on the banks will become ultimately destroyed without having ever interfered with the crop.

Plant hygiene or Cleanliness in the fields with reference to insect control.

You know that when you keep your houses and domestic pets clean you do not get fleas; that when you keep your kitchen and pantries clean and tidy you get fewer roaches and ants. If you removed from the fields and destroyed the weeds and plant refuse which harbour insect pests you would also have done a great deal to eliminate insect pests.

I have told you that it is advisable to leave strips of young grass between the rows of sprouting corn or other seedlings. You must not misunderstand me and think that we should provide food for insect pests so that they would not attack our crops. In the majority of cases this would be fatal, as with an abundance of food most pests would breed in enormous numbers and ultimately destroy all the vegetation and, in preference, your succulent crops.

Strips of young grass in the fields should only be left during short periods and in those areas where cutworms and army worms suddenly appear in great numbers after the October rains. As those worms live a short time and are afterwards decimated by parasitic wasps, etc., no harmful effect will result if you satisfy their appetite

momentarily, diverting their attention to grass until their natural enemies and the insecticides you may apply will bring them under control.



Tomato Plant with Roots showing Nodules caused by Eelworm infestation.

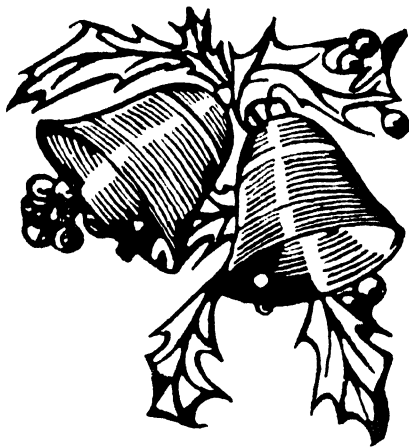
We have just seen that there are many ways by which agriculturists with practically no trouble or extra cost of cultivation can **prevent** attacks of their growing crops by injurious insects.

By proper agricultural practices you will have minimized risks of seeing your fields becoming infested by pests. You will not however have excluded altogether the possibility of insects flying into your fields. These you will have to destroy before they reproduce themselves and do much damage.

I do not doubt that many of you are now thinking 'he is now going to use scientific names and give us a thrill with a display of deadly poisons, of gas masks and of power dusters and of sprayers.' Others are saying 'those wasps and beetles he has introduced have proved so useful that if he does not promise to give us others to destroy all our enemies, we shall ask him to produce without delay all those we would like to have'.

Those persons will be dissatisfied. I do not intend to describe any method of control which you cannot apply yourselves. I have a small cultivation and my neighbours and myself now know by ex-

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perience that all the pests one finds attacking food crops in Jamaica can usually be controlled without using dangerous poisons and without having to buy expensive instruments. I want to teach you how to help yourselves in the same way.

Hand Picking. Capture of insects by hand and their destruction by mechanical means is often considered by inexperienced planters as being a somewhat primitive method of controlling pests.

To speak plainly, I may say that the unpopularity of this method is frequently due to the fact that whilst it requires sustained attention on the part of those supervising the plantations, as well as from the other people engaged in eradicating pests, it does not produce the spectacular effects which many people like.

Popular feeling being such, agricultural instructors, fearing to diminish their prestige are frequently reluctant to advise hand picking of insects.

Such a state of affairs being prejudicial to the real interest of agriculturists, I find it necessary to emphasize that in many circumstances hand picking remains the most economical and effective method for controlling certain pests.

BITTER ORANGES.

Large supplies of Bitter Oranges are required by Jamaica Fruit Product Company, 82 Red Hills Road, Half-Way-Tree.

Producers are advised to write to Mr. P. O. Williams at the above address for information as to prices and the stage of maturity at which fruits will be taken.

SWEET ORANGE COMPETITION, 1940.

GROWERS are again reminded of the Sweet Orange Competition which will be run by the Society during next year.

Rules and conditions governing this competition were published in the Journal for September. (Vol. XLiii. No. 9 page 414.)

The object of the competition is to find the perfect "early" and "late" Jamaica Orange. If suitable varieties are found, arrangements will be made for propagating these varieties, so that a native orange suitably named will be produced for world markets.

The first competition, that for the "early" orange, will be held during the first week of September, 1940, while that for the "late" orange will be held during the first week of May, 1940.

Entry form are now available and may be obtained at the Society's Office on application.

Intending competitors are asked to bear these dates in mind.

Attractive prizes and possible purchase of large supplies of bud-wood will be the reward of the lucky winners.

Growers should look up the Journal for September and study the conditions of the competitions.

Forms for the Early Orange Competition must reach the Secretary by the 1st August next year, while forms for the Late Orange Competition must reach him by the 1st April.

UNHEALTHY CONDITION OF CITRUS TREES RESTORED BY ROOT PRUNING.

By C. Byles, Agricultural Instructor.

SEVERAL years ago I had my first experience of the value of Root Pruning. I had in my grove a sickly looking citrus tree which would not make any improvement. I decided to remove it and replace it with a younger tree from my nursery. I got a spade and set to work by cutting a circle around the tree with a radius of about eighteen inches, with a view of taking out the tree. I was called off on important business, and was not able to return to complete the job until several weeks after. On my return I was unable to recognize the tree which had put on splendid growth. Immediately I decided to forego my sentence of death which I had passed on this "no longer sickly looking tree". To my surprise this tree has turned out to be one of my best looking trees and is most fruitful. I am now a firm believer in root pruning, and I have practised root pruning with astonishing success.

When citrus trees are suffering from die-back, and show signs of an unthrifty condition, much may be done toward restoring them on most soils by root pruning. The amount of pruning required depends on the severity of the attack, the size of the tree and the nature of the soil. Roots may be pruned by cutting a circle around the tree with a sharp spade, thrusting it well into the earth so as to sever a large number of roots. All dead branches should be removed and the tree reduced to healthy branches. After the tree is thoroughly cleaned up, proper tilling and fertilizing should be carried out to keep the tree in a thrifty condition.

Some months ago I recommended the ploughing up of a Citrus grove of seven acres, which was then in an unthrifty condition, with a view of getting the trees in healthy condition for top-working. Ploughing was done along the rows in one direction, and all the roots which were turned up by the plough pruned. Two months after the same job was repeated but this time ploughing was done in the other direction, ploughing across the rows which were not ploughed in the first instance. The result has been simply wonderful, the trees have been top-worked and the buds have come along with vigorous growth. Many other neglected groves have been restored by this method.

NOTES ON CASSAVA.

THE Cassava plant is drought resistant. It thrives best in alluvial soil, sandy soil, and "red dirt" (limestone formation), up to about 2,500 feet above sea level, but with a decided preference for the lower levels.

The plants are grown from cuttings, these being portions of the stem of the plant. The fit portion of the stem is cut into convenient lengths of about 6 inches. Each cutting contains 4 or more nodes or joints. Where the plough is used, furrows are usually opened 4 feet

apart, and the cuttings set out a yard apart in the furrows. In any case deep tillage is necessary.

Planting may be done in holes spaced 4 feet by 4 feet or 3 feet by 4 feet. Each hole should be 18 ins. by 18 ins., and broken up to a depth of not less than 9 inches.

The cuttings are now set in a slanting position, the older ends downwards. The top node should be barely above ground. This affords protection to the growing plant from labourers, and passers by. The single stem plant is usually the most robust and productive.

The crop is, as a rule, harvested when a year old. Some varieties mature in 9 months. The yield averages 6 to 8 tons of tubers per acre. Under ideal conditions the yield is 8 to 12 tons, but may be as low as 3 to 4 tons under careless cultivation, or in poor soil. The starch yield is 25 to 30 per cent of the weight of the tubers.

There are two distinct types of cassava, namely the "Bitter" and the "Sweet," and of these there are several varieties. The "Bitter" varieties are used mostly as a source of meal and starch. The "Sweet" type is chiefly grown as a vegetable. The juice of the roots of both types contains prussic acid which is poisonous. The "Bitter" type contains a greater proportion of poison than the "Sweet."

In the case of the "Sweet", the poison is removed by boiling. The root of the "Bitter" is grated or by some other means pulverised. This pulp when agitated in fine mesh, or in coarse cloth with water poured on is divided into starch and meal. The starch passes through with the water, leaving the meal behind. In a short while, the starch settles at the bottom of the container into which the liquid was poured. The water is then poured off, and the starch dried, and stored.

To make a clean starch the fresh roots must be scraped of the outer skin, thoroughly washed, and quickly manufactured. The water used for washing the pulp must be sparklingly clean. The meal when dried and powdered is used in just the same way as other meals.

For the making of "bammy" the process is different. Then the juice is pressed out of the pulverised mass, so that the starch remains mixed with the meal. This mixture when dried by exposure to hot air becomes the flour which is further powdered, sifted, and baked for food.

The meal or flour, when parched over a slow fire produces farina which may be stored for a long period, cooked into porridge or prepared and eaten as required in other forms.

Tapioca is made from the pure starch of the cassava. The dry starch is moistened, then heated gently. The grains of starch burst and cling together producing tapioca, which is then dried, stored, and sold. Tapioca makes a porridge which is digestible by the weakest stomachs. It is eaten mixed with milk and sugar, and if desired, with spice, such as nutmeg, or cinnamon.

The cassava also produces a by-product known as cassareep. This is obtained by boiling down the poisonous juice of the bitter cassava. Cassareep is a powerful meat preserver. It forms the basis of some popular sauces.

We are not making all the use we should of the cassava as a local industry.

A. P. Hanson.

MEATLESS DISHES

IT is now well known that for a meal to be palatable and nutritious, it is not absolutely essential for meat to be included in that meal.

Some persons cannot eat meat. Others do not eat meat because it disagrees with them or they do not believe in eating flesh of any kind. Still a third class of persons does not eat meat because there is not the money with which to buy it.

Dishes in which meat is not included should be carefully planned if those persons who are to eat them are to be fully benefitted. Care has to be exercised to see that certain vegetables are included so as to supply those substances which are lacking, due to the omission of meat.

At the West Indian Training College in Mandeville they do not believe in meat. Despite this, the students there fare excellently on dishes prepared from recipes similar to those published below. The recipes have been written for the Journal by the wife of the Principal of the College at Mandeville.

In view of the likely scarcity of meat-kind these recipes should prove interesting and useful.

Editor.

RECIPES.

By Mrs. R. S. J. Hamilton.

Macaroni With New Peas.

Season well-cooked macaroni with a little rich cream, or with canned milk and vegetable butter. Heat in a covered saucepan for 20 minutes, and serve with a spoonful of peas at one side, or mix the peas with the macaroni just before serving.

Peas With Noodles.

2 cups green peas	2 tablespoons rich cream
2 cups water (preferably potato water)	Noodles
	Salt to taste

Put the peas to cook in boiling water, enough to cover. Add salt to taste. Let them cook gently until tender. Put the cream into a small frying pan, and stir over the fire until the oil separates from the albumen. As soon as the albumen turns a light brown, add to the stewed peas, and boil up. Add the potato water, and when boiling hot, sprinkle in the noodles. Let boil 15 or 20 minutes, and serve.

Noodles.

1 egg	About $1\frac{1}{4}$ cups white flour
1 tablespoon milk	A few grains of salt

Savory Vegetable Loaf.

$1\frac{1}{2}$ cups soaked stale bread	$1\frac{1}{2}$ tablespoons brown flour
$\frac{3}{4}$ cup cooked brown beans	$\frac{1}{3}$ cup milk
$1\frac{1}{2}$ tablespoons vegetable butter	1 egg
1 tablespoon chopped onion	Sage, marjoram, and salt to taste

NOTES ABOUT FERTILIZERS FROM "HEADQUARTERS"

Due to War Conditions, stocks are now low and dates of new arrivals uncertain. The wise planter will anticipate requirements and place orders early, to avoid disappointment.

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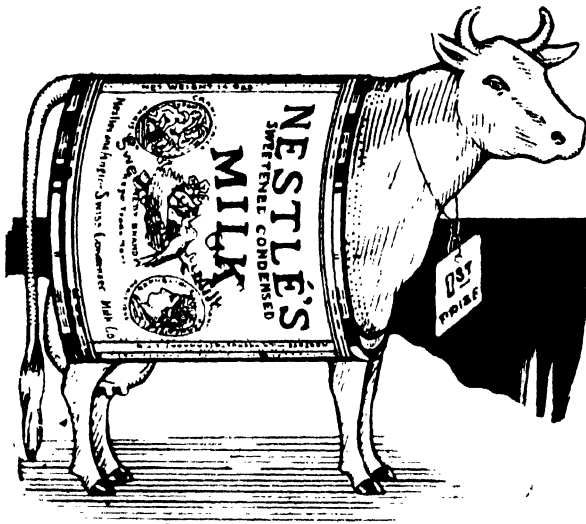
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Soak the bread in cold water, and press out lightly. Put butter onion, and savory into a small pan, and simmer for a few moments, but do not brown. Add the brown flour, then the milk, and stir smooth. Mash the beans with a spoon, break the egg with a fork, and mix all ingredients. Put into an oiled baking tin, and bake until set and a nice brown.

Savory Frijoles With Rice.

1 cup brown beans (raw)	2 tablespoons chopped onion
1 cup tomato pulp	A sprinkle of savory
$\frac{3}{4}$ tablespoon vegetable butter	Salt to taste

Braise the onion and the savory in a small saucepan with the butter for a few moments add the tomato, and boil up. Have beans well cooked in water, with salt to taste; and when the liquid has reduced down low, add the tomato sauce, and let simmer for some time. When ready to serve, have hot boiled rice dished up on a platter; then shove the rice to each side, and pour the savory beans in the centre. Sprinkle with chopped parsley, and serve.

Whole Rice With Peas.

1 cup uncooked natural rice	2 tablespoons vegetable butter
3 cups hot water	4 teaspoons flour
3 cups cooked new peas	$\frac{1}{3}$ cup milk

Wash the rice thoroughly, drain, add hot water, and let boil gently until the water is evaporated and the rice looks dry; then cover, and set on the edge of the stove to steam for 15 minutes. Rub the butter and the flour together in a small saucepan, add the milk, and stir over the fire until smooth. Add the cooked rice, and mix with a fork; then add the cooked new peas, mix lightly, put into the oven in a covered dish until hot through, and serve.

Bean Patties.

2 cups bean puree	1 egg
$1\frac{1}{2}$ tablespoons vegetable butter	Scant $\frac{1}{3}$ cup hot milk
1 tablespoon chopped onion	A sprinkle of sage
3 tablespoons flour	Salt to taste

Cook the beans until thoroughly done, and mash through a colander, having the pulp as dry as possible. In case it is too soft, it may be put into the oven for a few minutes. Make a paste as follows, for holding the food together; put the butter the onion, and the savory into a small saucepan, and let simmer for a few moments, but do not brown. Add the flour, and mix; then the milk, and stir smooth. Add the egg, slightly broken up, and stir over the fire until smooth and a very thick paste. Salt to taste, and add the bean puree. Mix well, and let cool; then roll out into small, round cakes about $\frac{3}{4}$ inch thick, mark on the top with a knife, lay in an oiled baking pan brush over with cream or milk, and brown lightly in a hot oven.

Bean Timbales.

Soak 1 cup dried beans over night. When cooked tender mash to a pulp. Add $\frac{1}{2}$ onion chopped fine and two beaten eggs and season.

Line custard cups or timbale molds with waxed and greased paper. Fill with bean mixture to inch of top and bake $\frac{1}{2}$ hour in moderate oven. Turn on hot platter and remove paper. Serve with tomato sauce.

Tomato Sauce.

1 can tomatoes put through sieve
2 tablespoons butter blended with
2 tablespoons flour

Heat tomatoes and pour into flour and butter. Season with salted celery salt. Cook 5 minutes.

Baked Beans.

2 cups dried beans	2 tablespoons salt
1 qt. water	$\frac{1}{2}$ cup molasses
	$\frac{1}{2}$ cup hot water

Soak beans overnight in cold water to cover; drain and add 1 qt. cold water. Heat and allow to simmer two hours, or until skins are tender and lose. (Instead of simmering process, beans may be cooked in pressure cooker at 20 lb. for 20 minutes.) Add salt, and molasses to beans, pour into greased bean pot or baking dish with a lid; and pour boiling water over it. Cover and bake slowly for 3 to 5 hours. (If a quick cooking is desired, cook in a pressure cooker 30 minutes at 10 lb., then in a moderate oven for 30 minutes to 1 hour.)

Split Pea Soup.

The green or yellow split peas may be used for the soup. Rub the cooked peas through the sieve. To the puree add cream and water until a good soup consistency has been made. Salt and season to taste. A few dried mushrooms, soaked for three or four hours, added to this soup give a delicious flavour. This addition may be made to other soups as well. Serve with croutons.

Lima Bean or Pea Soup.

Boil together three cups cooked lima beans or peas, two cups of chopped potatoes, and one cup chopped onion. When the mixture is tender, rub all through the colander. Add two qts. of water, a small piece of butter, salt to taste, and reheat.

Variegated Bean Loaf.

Cook and mash different coloured legumes. Pack, in layers or marble form, into a mold, having first put the seasoning into each kind separately. Brush with oil and bake in moderate oven. Unmold and cut in slices or send loaf to the table whole on a platter, garnished with lettuce. A dressing or gravy may be served with the loaf.

Lima Bean Loaf.

2 cups dried lima beans, cooked	3 eggs
1 cup bread crumbs	$2\frac{1}{2}$ tablespoons butter
1 tablespoon chopped parsley	$1\frac{1}{2}$ teaspoons salt
	$\frac{1}{2}$ teaspoon sage

Rub the beans through a sieve. Then add the other ingredients mix well, turn into a buttered loaf pan, and bake until nicely browned.

Baked Beans.

Put the beans to soak overnight. Drain and put to cook in cold water, let cook slowly until tender, but not soft enough to lose their shape. Put in a bean jar, adding four heaping teaspoonfuls of Crisco to two quarts of cooked beans, one-half cup brown sugar, and salt to taste. Bake for two or three hours. Add water now and then to keep soft and moist. Glucose will brown baked beans better than cane sugar.

Mexican Baked Beans.

1 pint brown beans uncooked	1 can tomatoes
	2 onions chopped

Soak and cook the beans thoroughly. Add the onion, tomatoes, salt to taste, and bake until dry enough to set.

Peas Puree with Tomato Sauce.

Wash two cups of green or yellow split peas and soak them, in cold water over night. In the morning drain off the water, put the peas in a double boiler, adding sufficient water to barley come to the top of peas and cook. When they are tender rub through a colander and season with butter or thick cream and salt. Serve with tomato sauce. The pea puree, when ready to serve should be about the consistency of mashed potatoes.

Pea Cutlets with Nut Crumbs.

Pack the left over peas puree in an oiled bread tin. The next day remove it from the pan, and slice it. Dip the slices in a mixture of 1 egg and 1 tablespoon of water, beaten together. Then roll the slices in chopped English walnuts. Place the slices on an oiled pan, and bake 15 or 20 minutes. Serve with tomato sauce.

Bean Loaf.

Put 2 cups of brown beans to soak over night, and the next day cook until thoroughly done. Mash well, then add one small onion, grated or minced, 1 teaspoon each salt and powdered sage, 1 tablespoon peanut butter dissolved in a little hot water, 1 cup of gluten meal, 2 tablespoons tomatoes and 3 hard boiled eggs, finely mashed. Add enough cold water to moisten slightly. Form into a loaf, bake in an oiled baking pan. Serve with brown gravy.

Bean or Horticultural Loaf.

2 cups well cooked beans
3 chopped green sweet peppers
1 cup bread crumbs
1 cup tomato puree
2 eggs
1 teaspoon salt, and few drops onion juice.

Mix bread crumbs with tomato puree, then add well-beaten yolks of 2 eggs and combine all other ingredients, lastly fold in beaten whites of eggs. Turn into well-buttered mold. Bake until firm. Serve with tomato sauce. One pound beans serve 12 people.

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NUTRITION IN WAR TIME

By Donald MacDonald, Accountant J.A.S.

NEVER in the history of the world has mankind been faced with such difficult problems as those which have suddenly confronted us in all their stark reality. No longer can we continue with complacency to regard the happenings in other lands as no concern of ours for science has demonstrated that space offers very little protection to us in this somewhat remote part of the world. Evidence is not lacking that the Mother Country is looking to us to do our part in this great struggle for principles which determine the degree of civilization to which we may look forward in the future. The horror which has descended upon small defenceless nations should provide food for thought and stir us to exert every effort to do our part to crush the evil forces which appear to be surging forward in all their fury.

The Queen of England has issued a special appeal to the women of the Empire to co-operate in all possible ways with the effort now being made to secure better living conditions for the oppressed.

The Secretary of State for the Colonies, Right Hon. Malcolm MacDonald has touched on our weakness and has urged us to make every effort to render ourselves less dependent on outside sources of Food supplies, especially those which will be needed for the inhabitants of those countries whose home production has been disorganized through the large-scale hostilities in Europe.

This Journal can claim the credit for having anticipated conditions such as these arising, and within the past few years several articles have appeared pointing out the value of our local foodstuffs and their important part in keeping us in good health.

Unfortunately in Jamaica a most foolish prejudice exists against our local foods and a visit to any well-appointed Grocery will find shelves stocked with such articles as Canned Carrots, Canned Beetroot, Potatoes, Spinach, Corn, etc. It follows that if there was no demand there would not be such a plentiful supply, and this fact redounds to our shame. This is where the women of Jamaica can outshine themselves by revolutionizing the dietary of Jamaicans, as they can very well use the excuse of this terrible war to introduce the changes which are so long overdue here.

To begin with, it is safe to say that everyone not engaged in hard manual work, excluding of course, the few exceptions, eat too much. This can be proved by reflecting that in 1926 our Hospitals mentioned only 840 cases of treatment for disorders of the digestive system while 10 years later we find the figure had risen to 16,000.

It is also noticed that our imports of Drugs and Medicines have been increasing rapidly every year. Most of these Drugs are required for unnecessary ailments which could be prevented by a rational code of eating, by which we mean selecting Foods which can prevent us from falling sick on the slightest pretence.

Such foods are known as "Protective Foods", and astonishingly enough, they happen to be among the cheapest that can be obtained.

An authoritative body as the Mixed Committee of the League of Nations which enquired exhaustively into the dietary conditions of a

good many of the peoples of this earth found that the lowly Herring was outstanding in value as a "Protective" food. Another "Protective" food of very high value is Spinach, known here as Callaloo. It is treble rich in Vitamins A, B. & C, and has a lot of Vitamins "E" as well. Other protective foods of high value mentioned in the list drawn up by the League of Nations Committee are Milk, Cheese, Butter, Eggs, Liver, all the Green Vegetables, and Fruit such as Oranges, Pineapples, and Mangoes. These may be regarded as First Class "Protective" foods. Next in order come such Foods as Meats, Root Vegetables, and tubers, in which such items as Pumpkins, Potatoes, (red variety) Sweet Peppers, Eggplant, find an important place.

Now here is where a surprise awaits us. In the list regarded as Non-protective foods we find prominent articles of everyday diet such as White Rice, White Bread, Cereals, and dried Peas, such as those which we import in large quantities; also Nuts, Sugar, Jam, Honey, and Vegetable Oils are also listed as containing non-protective qualities.

As already stated there are ways and means of checking up on the health of a community and by observing certain types of illness we can arrive within reasonable limits at the causes of these health disturbances. Let us ask ourselves how often we have seen a Herring or a part of a Herring on our plates during the past year and the answer will to a certain extent determine how lacking we are in knowledge of what foods give us the best returns as far as health is concerned.

Let us not forget that during the last war human resistance was so lowered that when the influenza outbreak attacked the civilian population it was those of apparently robust condition who succumbed first.

Science has over and over demonstrated that "deficiency" diseases are just as prevalent among those who have an abundance of food as those who have less than the minimum, but that when foods are selected for their health-giving qualities such ailments as Colds, Influenza, Appendicitis, Digestive disturbances, Eye troubles including Night Blindness, and a host of other unnecessary troubles tend to disappear and to skip over those who exercise plain common-sense in the kind of food they eat.

LET US CO-OPERATE.

What A Branch Can Do.

By D. T. M. Girvan, Co-Operative Officer, Jamaica Welfare Ltd.

EVERY time that we look at a cord or rope we see a striking symbol of co-operation. The threads in a mass of fibre are each so pitifully weak, and yet when plaited along with many others to form a rope they not only become strong but are in a form capable of a great many uses.

From our childhood we know this. Yet in facing our everyday problems we do not always remember that our strength lies in unity.

The first principle of co-operation is self-help, and in this the very history of the small settlers of Jamaica is a splendid example. The second principle is combined action with others in solving problems after a very careful study has been made of those problems. This is helping each other (mutual help). In this respect we must admit that while there have been many splendid examples of group action in Jamaica we have a long way to go.

Workers and small farmers in nearly every civilized country in the world are recognizing more and more every day that Co-operation is the great solution of their difficulties. The movement has been growing steadily for the past century and is developing with new strength amongst some of the humblest toilers today who find fresh hope and discover new powers in themselves to make their conditions better through their own efforts.

The history and study of Co-operation is one of absorbing interest, but the question that now confronts us is: In what way can we co-operate at once to help solve our problems that have been made more difficult by conditions caused by war and bad weather?

In the whole Island the people best organized to answer this question are the members of the Jamaica Agricultural Society. With a splendid record of service to Jamaican Farmers, the Society offers unique facilities. Members in a village have their own Managing Committee; the advice of the Agricultural Instructor; the exchange of views with the Parish Branches Associated; and the advice and help of the General Secretary and the Board of Management.

The Government is playing its part by an organized Food Production Campaign and credit facilities through Agricultural Loan Banks, and in many other ways.

This is the great opportunity for the Managing Committee of each Branch Society in the Island to place a plan of Co-operative action before its members; and a chance for the members themselves to study their problems carefully, to assist their committees in planning such a programme and in giving their loyal support in seeing it through.

For the Food Production programme it is hoped that the members of each Branch will come together to purchase seeds, fertilisers and tools to get the lowest prices. Next, it is advisable that careful thought should be given, followed by full discussions with a view to finding the means of selling their produce co-operatively.

This is the first—the immediate need, but it is not enough.

The next thing to decide is what is wrong with your village. You and your fellow citizens should know this better than anyone else. Therefore, rather than merely talking at home, or writing to the papers or having heated discussions, the logical step is to ask the members of your Branch to study their own village problem carefully, and either the Branch itself, or the Branch in co-operation with any other village organizations, *should make a careful study of the problems of the area and formulate a programme for planned development.*

This programme should be considered under several heads, and it will be discovered that although the prime purpose is to solve your

problems in Agriculture and Economic Conditions, there are other problems that must be faced. One thing leads to another. We will not be afraid of tackling these, however. We will proceed in the manner that has been tried and proven in many parts of the world—in the manner that is now being made famous by humble fishermen and workers in Nova Scotia—which may briefly be summed up thus:—

Study your Problems

Decide on a Plan

Swing into Action.

Adapted to a Branch, this may be organized in this way:—

The Managing Committee, in consultation with the Agricultural Instructor, can present a survey to the Branch, with its recommendations for a Programme of Development. After the Branch approves, this programme should be referred to the Secretary of the J.A.S. for his advice.

Sub-Committees of the Branch should be appointed to study the various problems, which may be divided under several heads such as:—

Co-operative Purchase: Accurate information of best means of buying Seeds, Fertilisers, Tools.

Co-operative Processing: Investigating whether means can be found to cure Produce together; for example, in a small Coffee District, a Pulper may be bought co-operatively.

Co-operative Sale: Study a practicable way of doing this, including investigation of the facilities offered by the Marketing Division.

Your Loan Banks: All the details of its working.

Food Production: The great need.

General Planting: Crops generally, including such projects as Peanuts and Grapes etc. Permanent Crops such as Citrus, Coffee; and economic trees such as Breadfruit, Avocado Pears, Cashews, etc.

Afforestation: Under the advice of the Forestry Department.

Livestock: Now under expert supervision. In addition to the Agricultural Instructor, if possible, the Plant Disease Inspector, Land Settlement Officer and Forest Guard should be consulted on matters that particularly concern their respective duties.

A small library of such books as the Journal of the Jamaica Agricultural Society, pamphlets, and other suitable books should be kept in a cabinet at the meeting place of your Branch, and gradually extended. As the Programme becomes more comprehensive, arrangements can probably be made with the Institute of Jamaica for a supply of books with a wide range.

With regard to the general problems that affect a village, it must be remembered that broadly speaking there is a number of agencies whose help may be very valuable; in addition to the Jamaica

Agricultural Society, there are Government and Municipal bodies such as:—

Department of Agriculture, Marketing Division, Forest Department, Land Settlement Department, Central Housing Authority, Health Department, Institute of Jamaica, Parochial Boards.

In addition there are other Organisations including:

Jamaica Welfare Ltd., Boy Scouts, Girl Guides, Girl Guildry, and Church Organisations.

General Community work includes: Social and Educational, including Adult Education; Provision of recreational facilities; Work among the Youth; Work among the Women. Health, including Sanitation and Nutrition, and particular problems of Malaria, Venereal Disease etc., and Housing. Village Industries. Music and Drama.

It will probably be found advisable to have meetings every two weeks instead of once monthly. Sub-Committees or Study Groups may meet in private homes. Guest Speakers on Specific subjects may be invited at regular intervals as part of the programme, to address meetings of the village.

To make a start, try out this plan by asking your Branch to make a programme for at least three months and see what we can accomplish, and learn as we go along.

Let us STUDY our problem.

Let us PLAN.

Let us CO-OPERATE.

FOOD PRODUCTION

PAMPHLET No. 4.

The Red Pea, String or Kidney Bean (*Phaseolus vulgaris*).

OTHER names by which this species of bean are known are:— Dwarf, Haricot, French, and Sugar Bean. The various names taken together give a fair description of the plant; Dwarf, because it is a small relative of the climbing runner bean, and one of the smallest bean plants widely cultivated; Red, because the seeds are commonly red or red-brown, though sometimes mottled; Kidney, because most of the seeds are of this shape; and String, because selected types like the Wonder Bean are grown specially for their pods which are cut in slices and cooked in a green state.

In Jamaica the "red pea" needs no description as it is undoubtedly the most popular pulse in the Island, and many growers have had experience of string bean types grown both for local market and export. It is surprising to find, however, that large quantities of red peas are imported into the Island annually from Chile and other countries. One reason for this is that growers have allowed their strains of seed to become mixed. Local market samples may show small and large seeds and red, brown and mottled types all mixed together, whereas imported seeds are generally very uniform and appear much more attractive. Another reason is the poor yields often obtained here through faulty cultural practices.

The object of this pamphlet is to assist growers to produce better average yields of red peas, and so make it possible for the Island to dispense with imports.

Districts Suitable. Red Peas prefer a relatively cool climate, and hence rarely grow so well on the plains as in the hilly districts. All parishes, however, possess areas between 1,000 and 3,000 feet in altitude which are suitable and in the cases of Portland, St. Mary, St. Ann, Hanover and Westmoreland it would be possible to utilise areas well below 1,000 feet during the winter months.

Soil and Climate. Red peas do best on light, rich soils and heavy soils should generally be avoided. Most "red dirt" are very satisfactory in texture, but will only give first class results if they have been previously cultivated and contain plenty of organic matter. The plants are shallow rooted and require regular showers of rain throughout the growing season. Light mulches may be used to supplement insufficient rainfall in some areas.

Place in Rotations. Red Peas should never be mixed with other crops, nor should they follow another pea or bean crop, because nearly all plants of the pea family suffer from the same diseases and pests. Red Peas may with advantage be planted after root crops such as Sweet or Irish Potatoes, or after vegetable crops such as, cabbage, egg-plants or sweet peppers. If corn has only been grown once in the preceding year, the peas may be sown after this crop, but it must be remembered that corn is a greedy crop which exhausts the land rapidly.

Manuring. As explained above, Red Peas like a rich soil, and will respond to a dressing of organic animal manure, ploughed or forked in before sowing. If such manure is only available in limited quantities, however, it would be preferable to apply it to the preceding crop especially if this is a root or vegetable crop. The red peas will still benefit to some extent from the manure applied to this earlier crop. On the other hand, if corn is the preceding crop, it would be better to try and save the manure for the peas. With artificial fertilizers, including lime, it is desirable that these should be applied to the preceding crop, because most of these fertilizers act too slowly to benefit a crop that only takes two or three months to mature. Applying them to the previous crop will, however, give them a good start.

Preparation of Land. Although the Dwarf red peas are quick growing plants, they rarely grow much taller than over 1 foot, and never smother weeds in the way Cow peas may do. It is therefore essential that the land should be very thoroughly cleaned before sowing. Track forking is not sufficient and the whole area should be ploughed or forked to at least 6 inches and then broken down to give a loose, clean seed bed.

Choice of Seed. There are a great many varieties of red peas, some good and some bad, and it is advisable for growers to use only seed of a variety which is well-known in their particular district. Mixed seed of several varieties should never be sown together, as it nearly always includes some inferior low-yielding types. Care should also be taken to obtain seed from plants that are free from diseases and pests, and special care should be taken to avoid seed infested with evils.

Time to Sow. Sowing should be timed as far as possible to give the plants six or eight weeks of fairly rainy weather, and thereafter somewhat drier weather to ripen off the pods. This means that in normal years successions of red pea crops could be sown in different districts from mid-September to the end of May. If growers feel uncertain about the weather to be expected at any particular season, it is a sound practice to divide up the seed into two or three lots, sowing these lots at two-weeks intervals.

Seed Rate. Large seed varieties, 2 bushels (128lb.) medium $1\frac{3}{4}$ bushels (112 lb.) and small $1\frac{1}{2}$ bushels (96 lb.) per acre.

Sowing and Spacing. Red Peas should be sown in rows 2 ft. 6 ins. apart, with single seeds placed 8 inches apart in the rows. If the soil is moist at sowing time the seeds ought to be placed 1 inch deep, but if the soil is rather dry, $1\frac{1}{2}$ inches deep.

After Cultivation. Hoeing between the rows and hand weeding in the rows should be started as soon as the seeds germinate and be continued, to keep the land free of weeds, until all the bean pods are full sized.

Harvesting String Beans. Good quality string beans can only be obtained by hand-picking every two days. The right stage at which to pick the pods is when they are full grown in length, but before the seeds start to swell up inside. At this stage the pods should snap with a clean break when bent. Two or three days later the same pods will tear instead of snap and will be stringy, and therefore of much less value for selling purposes.

Harvesting Mature Red Peas. The usual practice in obtaining the dry peas is to collect the whole plants when they have withered and hang them, tied in bundles, in a shed to complete drying. This is satisfactory as long as much rain does not fall during the two or three weeks before harvest. If it does the seeds inside the older pods will become thoroughly wet and may start to germinate. Should this seem likely to happen, all the ripe pods should be hand-picked as soon as they become brittle. In all cases drying should be done in places free of debris that might contain weevils.

Shelling and Storing. Whether whole plants or single are harvested it should be the object of the grower to dry and shell them as rapidly as possible. Shelling can be done most simply by beating the dry pods in a bag. The peas separated in this way should be sorted and any broken and not properly ripened ones removed. The sound peas should be dried further in the sun, and then placed in clean tins, barrels or boxes for storage. To protect the peas against weevils, they may be covered with a 2" layer of slaked lime or wood ashes. Even if this is done, however, any peas to be kept for some months should be examined periodically, and exposed again to the sun to dry out the moisture that the seeds will have absorbed while in storage.

Yield. 10 to 15 bushels of 64 lb., or in other words 640 to 960 lb. per acre.

FROM MY NOTEBOOK.

Plant and Soil Research.

"As soon as the proportion of any one element in the soil falls too low, certain characteristic effects are produced in the plant which may alter its agricultural value."

"In humid regions deficiency of nitrogen relative to the other elements is common, the result of the ready solubility of the soil nitrates. This reduces the rate and total amount of growth of the plant but has little effect on the composition and character of the plant.

Nitrogen deficiency is closely linked with the organic matter content and micro-biological activity of the soil."

"Phosphate deficiency may occur anywhere but chiefly in soils formed from rocks containing little or no animal remains. It reduces root-activity of plants and the tillering of cereals and brings about certain chemical changes profoundly affecting the quality of the produce. Phosphate starved grass is innutritious to animals inducing phosphate deficiency diseases."

"Iron deficiency is perhaps more common than is usually recognised. B. C. Ashton first found it in certain New Zealand soils and traced it to a persistent anaemia of cattle from which they suffered greatly and finally died. This was in a wet region on somewhat acid soil sufficiently light to allow of ready leaching out of the iron. Unfortunately no easy recognisable symptoms in the vegetation have been observed but analysis of the ash at once reveals the deficiency of the iron."

"To magnesium deficiency has been attributed a chlorosis of tobacco."

"Potassium deficiency is usually formed only in relation to nitrogen excess. When the ratio of nitrogen to potassium becomes large, the plant is considerably altered: its leaves become very dark-green liable to die in discoloured patches, liable to attacks of certain fungi; the percentage of starch or sugar in the storage organ falls off and the percentage of nitrogen compounds correspondingly increases. The tubers of potato suffer in cooking quality; the roots of the sugar beet contain less sugar and yield a more impure juice."

"Calcium deficiency is most likely to occur in wet regions where it results in an acid soil. It may occur in a dry region where sodium chloride is present and the latter has displaced some of the calcium."

Earth Mulch.

"It is frequently stated that the preservation of a mulch of dried soil is an effective means of conserving from evaporation the soil water. On the other hand extensive work on the influence of moisture on crop production in the Great Plains area of America has led to the conclusion that the loss from a mulched surface is practically the same as from an unmulched one. The effect of cultivation is to prevent weed growth and in consequence transpiration losses and the mulch is in fact only incidental.

The theory on which the supposed action of a mulch is based, likens the soil to a mass of fine capillary tubes up which water can ascend from the free water table to the surface. The mulch is supposed to break these channels, thus preventing the water in liquid form from rising higher than the bottom of the mulch. Work at Rothamstead and elsewhere has shown this idea to be incorrect, and has also demonstrated that the distance to which water can ascend above the free water table is much less than that predicted by the laws of capillary rise."

C. M. A. ROBOTHAM,
Agl. Instructor.

STUD STATIONS.

By J. W. Howe — Livestock Officer.

IN order to improve the type of Livestock raised in Jamaica, a number of Stud Stations are being established throughout the Island. The total number of Stations being established this year will be 30 and they will be located in areas where Livestock is already well established in large numbers.

It is proposed to improve the Livestock in Jamaica by the use of well bred Sires of the various classes of Livestock. Such sires will be available for service at each of the Stud Stations.

Each Stud Station will comprise an area of approximately 5 acres and will be stocked with a well bred bull of either the dairy type or the dual-purpose type, depending on the type of cattle raised in the district, a boar pig of the Berkshire breed and a ram goat of either the Toggenburg or Anglo-Nubian breed. The services of the Sires at these Stations will be free to the people in the district. Three stipulations are made, in connection with the services available: (1) no female will be served which is showing evidence of being diseased; (2) no female will be served which is in poor condition; (3) No person will be allowed more than 10 services per year to any one of the various sires.

It is hoped that the services available will be well patronized, as by the use of good sires the Livestock Farmer can do more to improve the type of the Livestock he raises than by any other one factor.

When any female is served, the owner will be issued with a Service Certificate, showing that the animal has been bred by one of the sires at the Stud Station. Such a Certificate will provide the owner of the animal with written evidence as to the breeding of the offspring.

In connection with the Livestock Improvement Campaign, a Field Staff has been appointed, and the Officers will assist the Livestock Farmers with their problems.

For the Livestock Improvement Campaign, the Island has been divided into three districts, the Eastern District, includes the Parishes of St. Thomas, Portland, St. Mary, St. Andrew and St. Catherine, with Headquarters at Hope, in St. Andrew. The Central District, includes the parishes of St. Ann, Clarendon, Manchester, and Trelawny, with Headquarters at Grove Place, near Mile Gully. The Western District includes the parishes of St. James, Hanover, Westmoreland, and St. Elizabeth, with Headquarters at Montego Bay.

In each of these Districts, a Livestock Field Officer has been appointed, whose duty it will be to assist in any way to improve the Livestock of the Island. Such Officers are at present making a survey of the various districts, to determine where the greatest Livestock population is located. When this survey is completed the locations of the Stud Station in each area will be undertaken.

As it costs actually less to raise a "scrub" animal than it does to raise a good one, it will be to the distinct advantage of the Livestock Farmer to improve the type of Livestock, by using the sires which are available at the various Stud Stations, as by so doing, he will not

only decrease the cost of producing the Livestock but will have a more valuable type of animal as a result.

It is hoped that the Stud Stations will be well patronized, as such patronage will do much to improve the type of Livestock raised in Jamaica. Information concerning breeding feeding, and management of all classes of Livestock, can be obtained from the Livestock Field Officer in the district, who will be only too willing to discuss their problems with them. It is hoped that Livestock Farmers of Jamaica will avail themselves of these services of the Stud Stations as well as the assistance offered by the Livestock Field Officers in the various districts. Such services offered will not only increase the numbers of Livestock but will improve the quality of Livestock raised.

WINDBREAK AND THE STORM.

By. A. P. Hanson, Supervisor of Instructors.

MANY humble peasant cottages, and some valuable plants owe their protection during the recent storm to near-by trees. On the St. Catherine irrigated plain along the Kingston — Spanish Town road, and on a smaller scale at several places inland, banana fields and banana plots were saved because some trees to the south acted as windbreaks.

A good windbreak consists of a belt of trees thickened by hedges and shrubs. The primary object is to afford growing crops protection from strong prevailing winds. Suitable shade and windbreak trees not only check the force of strong winds, they prevent the rapid escape of moisture from the soil, temper the rays of the sun, and make the atmosphere cool. The windbreaks prevent hot winds hugging the soil and evaporating the moisture. They protect growing crops enabling the plants to find safe anchorage.

A broad field will need more than one wind-belt. It is estimated that a windbreak of trees 40 feet high has a beneficial influence to a distance of 650 feet to the leeward, preventing the soil from drying out quickly.

Even slight barriers as fences and hedges lessen the injury from wind for a distance of several hundred feet to leeward.

It has been argued that the plants of a windbreak steal much moisture from the adjacent land. When the roots of windbreak trees are liable to spread to the detriment of the cultivated crops then a deep trench should be cut to prevent the penetration.

An ideal windbreak consists of rows of tall trees in the centre, with shorter trees planted on both sides, or either side, outside these, then bushy trees or shrubs. Among these a dense growth of seedlings, shoots, withes etc., should be encouraged. The wind-belt may in time provide timber, firewood and dyewood without impairing its usefulness. A windbreak tree should be of strong tough wood, with extended leafy branches, of a specie that produces seeds or suckers. Useful crop plants such as sweet tamarind, cashew, annatto and mango may form part of the belt.

THE PRODUCTION OF *CERCOSPORA MUSAE* CONIDIA IN BANANA-LEAF AGAR

By

Clifford H. Meredith, Science Master, Happy Grove School, and Alfred F. Butler, Agronomist in Charge, Cedar Grove Experimental Station, Research Department, United Fruit Co.

THE work with *Cercospora musae* has been retarded due to the difficulty experienced in producing conidia by artificial means. This difficulty has, also, been experienced in the study of other varieties of *Cercospora*. Normal conidia of six species of *Cercospora* were produced in pure culture by Nagel with potato-dextrose and sugar-beet-leaf agar.

The medium used to produce conidia of *Cercospora musae* consisted of a section of banana leaf 8" x 12" finely cut and boiled with 500 c.c. of distilled water for 5 minutes. This water was drained off and used to make up a litre of solution by adding distilled water and 2 per cent melted agar (Nagel used 1.2 and 1.5 per cent). The water was distilled in Pyrex glass and copper was not allowed to come in contact with the medium.

The conidia for seeding were obtained from banana leaves with typical *Cercospora* leaf spots that were held under moist conditions for 15 to 20 hours. A loop of steril distilled water was brushed over the spot and transferred to the tube before slanting. The tubes were held in a battery jar with a glass lid.

Black spots appeared after four days that proved to be a mass of dark mycelium on which were many conidia. Conidia were observed each day for five days. In some cultures conidia were not observed until the fifth and sixth day after seeding.

BRANCH NOTES

TRELAWNY: Waldensia, Sherwood Content P.O.—Meeting 4/12/39. Many members were present. The President Mr. D. A. Beckford presided. Among welcomed visitors were: Hon. & Rev. J. W. Maxwell, M.L.C., J.P. and a Police Officer from Clarks Town, who attended to address the Authorized persons and to instruct them with regard to their work. The chief business included:— Welcome to Rev. E. A. Jessop, Treasurer who has recently returned from England. An address by Rev. J. W. Maxwell on Help to Storm Sufferers. The need for a Loan Bank in Sherwood. Need for "New Forest" property for Land Settlement and the bad condition of the roads. The roll call was taken and 12 new members were enrolled. Mr. C. C. Lee was elected to represent the branch at the Half-Yearly Meeting. The rat destruction campaign was discussed. The Pamphlet on "Storm Damage Emergency Measures" was noted for further consideration and the matter of the proposed deputation was read. The National Anthem was sung and the meeting adjourned.

C. C. Lee, Secretary.

Literature cited: Clatus M. Nagel, Conidial production in species of *Cercospora* in pure culture, *Phytopathology*, October 1934, Vol. XXIV, No. 10, pp. 1101-1110.

ST. ELIZABETH: West St. Elizabeth, Black River P.O.—Meeting held 5/12/39. Present were: Instructor Lynch, Instructor Llewelyn and Mrs. Llewelyn, Messrs. R. A. Bennett President, 5 other members, one visitor and the Secretary. After the reading and confirmation of the minutes — correspondence was dealt with. Circular on Rat Extermination Campaign was discussed — this was fully explained by Mr. Lynch. Mr. Lynch introduced the new Instructor and spoke at length on the Food Production Campaign. Mr. Llewelyn then addressed the meeting and spoke on Stock-rearing. He advised members to rear the best breed of whatever type of small Stock they are interested in and showed the advantages of rearing good breeds. Both Instructors were thanked for their addresses. The Meeting terminated with the singing of the National Anthem.

E. B. Vickers, Secretary.

Nightingale Grove, New Market P.O.—Meeting held 1st December, 1939. Present were Mr. A. A. Walker, Vice-President in the Chair, several members of the branch, a large number of visitors and the Secretary. After prayer and usual opening remarks by the Chairman, the minutes of special meetings held 20th October and 14th Nov. were read and confirmed. Letters were read from the Parochial Board — Westmoreland re the Cedar Valley — Leamington Road, and from the Commissioner of Lands. The Secretary was instructed regarding the reply to the latter, and it was decided to await another letter from the former. It was decided that resolutions should be sent to the Associated Branches as the Branch would not be represented at the Half-Yearly Meeting. It was decided that a telegram be sent to the Colonial Secretary through the Parent Society to the effect that the road between Newmarket and Kilmarnock was still inundated and urging the need of a bye-path for that end. The meeting adjourned and the Inaugural meeting of the Loan Bank was held.

Edna J. Robson, Secretary.

HANOVER: Kendal, Cessnock P.O.—Meeting held 6/12/39. Present were: Mr. R. T. Williams, President, 24 others and the Secretary Mr. L. A. McNichol, the new Instructor for the district was also present. A cordial welcome was accorded the Instructor, and wishes expressed for the success of his work. He spoke on "Increased Food Production," and several members registered for the Food Production Campaign. The Secretary spoke at length on "Rat Extermination Campaign," and distributed several tins of rat poison with full instructions. Mr. R. T. Williams was appointed delegate to the next Half-Yearly General Meeting. Authorized Persons present reported "All Correct," and the meeting terminated with the singing of the National Anthem.

D. O. Haase, Secretary.

WESTMORELAND: Beeston Spring P.O.—Meeting held 5.12.39. The President the Rev. S. J. Swaby presided, 14 members and 4 visitors were present. The Rat Campaign was fully dealt with and baits for destroying the rats distributed. All who were present were very interested and promised to give the best possible co-operation to ensure good results. Increased production of food was also dealt with. It was pointed out that the limited area for cultivation was a severe set back to any efforts which might be contemplated in this respect. Two Resolutions were adopted relative to the demolishing of timber trees on a property supposed to have been acquired as Land Settlement and the expediting of the cutting up of the property for Land Settlement to admit the extension of food production efforts to prevent food shortage in the neighbourhood during 1940. The Secretary was asked to transmit the resolutions to the Parent Society. The meeting adjourned.

N. C. Guy, Secretary.

Cornwall Mtn., Cornwall Mtn. P.O.—Meeting held 27/11/39. Present were Instructor N. H. Mullings, 10 members, 14 visitors and the Secretary. In the absence of the President and Vice-Presidents Mr. J. W. Jones was voted to the Chair. The Secretary offered prayer and the Chairman extended a warm welcome to the Instructor and the members. It was the Instructors

first visit. The minutes were read and confirmed and matters arising from them discussed. Rat Campaign correspondence was dealt with. The Instructor expressed his thanks for the warm welcome given to him and his joy at seeing such a good turn out. He spoke on Rat Campaign and took the names of those who wanted baits. His chief subject was Food Production. He quoted figures to show how much money was spent annually on Rice, Flour, Corn-meal, Peas and Beans and imported meats. He stressed the food value of the local Corn and showed that it was or should be unnecessary to import peas and beans. He further spoke on the keeping of small stock and the use of manures. The Food Production forms were introduced and many signed them after the necessary explanation re loans was given. The meeting was thrown open for questions. Many were asked. A knotty one was "what security would Government expect from people who cultivated on rented lands?" The opinion was expressed that the security would be the cultivation, but the Instructor promised to get the proper answer to the question. A hearty vote of thanks was accorded the Instructor. The meeting day was changed to the 4th Monday in each month at 4 p.m. Two new members joined up. The singing of the National Anthem brought the meeting to a close.

U. C. White, Secretary.

Porter's Mtn., Mt. Peto P.O.—Meeting held 27th Nov. The President Mr. D. N. Clarke, 15 other members and about 40 visitors from the Welcome District were present. The meeting began with prayer. The visitors were given a hearty welcome. The minutes of the last meeting and after their confirmation, matters arising therefrom, were discussed. The chief being:—

(1) The new road. The meeting was still dissatisfied with the progress of the matter, and the Secretary was again instructed to write to the Board asking that something be done urgently to put the road in a satisfactory condition. (2) Deputation to Hanover Board. The Secretary informed the House that owing to the Storm the deputation did not wait on the Board, and that the date fixed was not made known early enough for action to have been taken. Correspondence was dealt with. Authorised Persons reported "All correct". Discussions took place on the following: (a) The Bell. The meeting was informed that the Bell had arrived. An appeal was made for generous contributions. One gentleman gave a donation and many promises were made. (b) Loan Bank. The Secretary stated that a meeting in connection with this matter would be held at Glen Islay on 30th Nov. when persons desirous of obtaining loans for the re-conditioning of their banana fields would have an opportunity of joining the Loan Bank, and applying for help. Many of those present signified their intention to attend. Minor matters were dealt with new members were enrolled and the roll call taken, after which the singing of the National Anthem brought the meeting to a close.

D. F. Bowen, Secretary.

MANCHESTER: Mizpah, Walderston P.O.—Meeting held 13.11.39. Attendance -- 33 members 12 visitors. Anticipating addresses from Mr. C. D. Neilson I.S.O., J.P. and Hon. C. A. Reid M.L.C. Mr. Reid was unable to attend. Rev. P. E. Holmes opened the meeting with prayer and spoke sympathizing with, and encouraging sufferers in recent storm. Minutes were read, confirmed and matters arising from them discussed. Reference was made to the bad state of the Mizpah public tank and a deputation consisting of Rev. P. E. Holmes, Mr. J. T. Cousins, Mr. J. S. Collins and Mr. E. W. Roberts was appointed to make observations and report on the matter to the Parochial Board. Half yearly meeting: M.B.A.: Messrs. M. H. Williams, H. Frazer and Miss C. Robinson were appointed delegates. Address: Mr. C. D. Neilson I.S.O., J.P. gave a very instructive, interesting, practical and useful address on "Nutrition in Relation to Production." He stressed the importance of greater production as contributing to the self dependence of the people, value of proper nutrition to health, growth, strength, vitality and improved standard. It is quality that counts more so than quantity he said. Many diseases were due to incorrect combination of nutritious foods, which also lead to poor growth weakened vitality and poor health and consequently to poor economy. He mentioned articles supplying the necessary proteins, carbohydrates and the essential vitamins. A vote of thanks was extended

in appreciation of these very helpful hints, useful to all ages. Reports were made as follows:— (a) Work on demonstration Plot, Progressing. (b) Treasurers report—adopted. (c) A.P. all correct. Mr. Cousins had "Joe Louis" out on show. This Society's buck spoke of good care and proper condition. More members were encouraged to enter Sweet Potato competition. The matter of an Agricultural Exhibition came up for discussion and a committee was appointed to discuss the matter and make arrangements and report to the next meeting. Roll call showed 33 present. The meeting adjourned with the singing of the National Anthem.

E. W. Roberts Secretary.

CLARENDON: Banana Ground P.O.—Meeting held 23.11.39. Mr. Harold Peart 1st V. Pres. presided. 11 members and 8 visitors attended. There was an address by the President after the reading and confirmation of the minutes the condition of the district was dealt with. Resolution asking (a) for a driving road Belcarres to Hargartam (b) to provide assistance for Sufferers were passed. The question of Authorised Persons was again discussed. Registration Forms were issued and the whole scheme outlined. Meeting closed with the singing of the National Anthem.

R. A. Peart, Secretary.

Arthur's Seat—Meeting held 1.12.39. Present: 16 members including officers. The resignation of the Secretary Mr. M. H. Davis was received with regret. Mr. Myles Gordon was appointed to act in his place. On the reading of the circular re Rat extermination Campaign all members signified their willingness to co-operate in exterminating this pest. The report of the delegate Mr. N. C. Wilson to the Half-Yearly meeting of the C.B.A. held on the 17th November was given by him, and he was heartily thanked. The report of Authorized person was received. Mr. N. C. Wilson was elected delegate to the Half-Yearly General Meeting of the J.A.S. A Social in connection with the branch was successfully carried through. To those who organized and carried through the function congratulations were given. The National Anthem brought a successful meeting to its close.

Myles C. Gordon, Acting Secretary.

Mt. Airey: Meeting held 14.11.39. Present were: Mr. R. Dawkins, president, Teacher H. S. Douglas new headmaster of the school who afterwards become a member, Mr. G. Harris Agr. Headman. 16 other members, a large number of visitors and the Secretary. The preliminaries were carried through. Items of importance dealt with were: (1) Welcome to Teacher H. S. Douglas who replied suitably and who afterwards took a lively interest in the discussions. (2) Correspondence re Half-Yearly meeting and Marketing Depot discussed. Mr. Harris gave useful information on the latter. The Secretary was elected to represent the Branch at the forthcoming Half-Yearly General Meeting. (3) Mr. Harris' address in which he mentioned the work of the Instructor and the value of it. He encouraged members to pay much attention to Banana Plantation, to do extensive and varied planting. He mentioned the Boner Pest and the harm it was doing. He also explained the object and anticipated results of the Loan Bank and asked members to endeavour to provide more milk and more meat. He was heartily thanked by the Secretary. As a result of his entreaty to have the plot prepared to receive the potato plants members promised to have it done speedily. (4) Song by Miss I. Pryel. She was thanked by the president. (5) Address by Teacher Douglas who said he was much impressed with the district and children and asked for co-operation from parents and for their support in giving children their own little plot at home for their improvement, agriculturally. He instructed the members as to how to destroy borers. (6) Secretary brought up the question of procuring a lamp. All agreed. Minor matters were dealt with. A.P.s Reports and Roll Call taken and the meeting terminated with the "King".

(Miss) M. E. A. Dawkins, Secretary.

PORTLAND: Panton Mt. Pleasant, St. Margaret's Bay P.O. Meeting held 25.11.39. Present: 26 members. Instructor Graham and several visitors. Mr. J. E. Eubank President, presided. Delegates to the Half-Yearly meeting of the Portland Branches were selected. The Secretary reported the appointment of a Ticket Distributor for the district. It was decided

to purchase seeds from the Parent Society for sale to branch members. The Instructor gave a lengthy address on "Cleaning of Fields," "Planting of Food Crops," and "Loans." The meeting terminated with the singing of the National Anthem.

Hazael B. W. Bunting, Secretary.

ST. CATHERINE: Bellas Gate.—Meeting held 13.11.39. There were present the President Mr. G. E. Markland, 3rd V.P., Secretary, Assistant Secretary, Rev. Minott and many members of the Branch. Mr. D. Webley was elected delegate to the meeting of the Associated Branches at Bog Walk and Mr. G. E. Markland for the Half-Yearly meeting in Kingston. Resolutions relating to Parochial Dispensary and Examination of Food Vendors at Bellas Gate were settled for the Half-Yearly meeting of the Associated Branches. Construction of the Blue Hole Road now in operation was discussed. Desire for a Loan Bank in the vicinity was expressed. It was decided that a letter of sympathy be sent the 2nd. V.P., Mr. D. Shaw, Instructor Rhone and Rev. Minott gave addresses. The singing of the National Anthem brought the meeting to a close.

(Mrs.) G. M. Markland, Secretary

Barmaddy: Linstead P.O.—Meeting held 23.11.39. Present: Mr. S. G. Lawrence, 1st Vice President and Mr. C. S. Byles Instructor and about 14 members. Minutes were read and confirmed, matters arising therefrom were discussed. Delegates for the Half-Yearly meeting of the St. Catherine Branches Associated were elected, and four new members were enrolled. The house was not satisfied with reply from the Parochial Board regarding a resolution sent to them and another resolution was passed on the same question. The Instructor gave a very interesting address on the Food Production. He emphasised the fact that over nearly all the money obtained in the Colony for bananas goes back for imported food. He suggested that we should eat more grains such as peas, beans, corn etc. etc., and less animal flesh. The meeting was then terminated with the singing of the National Anthem.

J. S. Bavadoo, Acting Secretary.

ST. JAMES: Bickersteth: Montpelier P.O.—Meeting held 24th Nov. Present: H. A. Denton Esq. President N. Campbell Esq., 1st V.P., S. A. Barrett, Asst. Secretary, D. M. Johnson Treas. Instructor A. Jobson, Teacher Leach of Mt. Carey 22 members and a large number of visitors. Letter of apology was read from the Hon. A. B. Lowe. Election of Officers resulted as follows: Pres. Mr. S. A. Barrett, Treasurer: Miss L. Currie, Secretary: Mr. E. A. K. Wilson. The Instructor spoke on "Food Production" and explained the method Government was adopting to assist the people to produce more crops. Mr. Leach spoke on the possibility of a Loan Bank at Mt. Carey and encouraged all members to support the proposal. Both Gentlemen were accorded a hearty vote of thanks by the Secretary. Minor matters were dealt with and the meeting ended with the singing of the National Anthem.

Ericson A. K. Wilson, Secretary.

JUVENILE BRANCHES

Caledonia School. Inaugural meeting held 28.11.39. Present: Instructor Mullings, the staff of the school and about 100 children. Teacher Grant introduced the new Instructor to the children. The Instructor gave a very interesting address on the importance of Juvenile Branches. He spoke of how much co-operation could be carried out. Before the meeting began the Instructor pointed out that each child has his or her own work to do. The Branch was soon formed in which Master L. E. Scott became President, Mrs. I. V. Clark 1st V.P. Master D. Wilson 2nd V.P. Miss C. E. McPherson Secretary and Miss Enid Petgrave Asst. Secretary. Mr. Mullings next congratulated the children on the way they voted and gave a brief synopsis of officers work. The meeting was closed with the singing of the National Anthem.

Reports were also received from the following Branches:

Morris Hall, (St. Catherine.) Caledonia (Westmoreland), Southfield, (St. Elizabeth), Warsop and Ulster Spring, (Trelawny), Catadupa, Mt. Horeb, (St. James).

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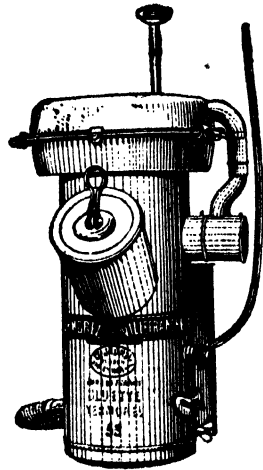
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INDEX TO JOURNAL, VOLUME XLIII.

A

	Page.
Absence, Board, Leave of	270
“ Field Staff, Leave of	7, 64, 126, 194, 330, 391, 510, 569
“ Office Staff, Leave of	187, 261, 332, 334, 388, 390, 453, 510, 770
Account, Comparative Trading	328
“ for professional services	6
“ Leaf Spot Control	64
Accounts, Auditing of	63, 254
“ Outstanding	259, 392, 569
“ Statement of	5, 62, 122, 184, 190, 253, 265, 327, 386, 446, 567
Ackee (<i>Blighia Sapida</i>) Notes on	430
Ackees, Bananas and	82
Activities, Standing Committee on Agricultural	199, 252, 264
Additional Branches, Instructors and	329
Address by the Right Hon. Lord Olivier	13
Advisory Board, Leaf Spot Control	121
Affiliations	7, 194, 266, 330, 391, 510, 569
Afforestation	333
Aforestation in Jamaica, Erosion and	350
Agricultural Activities, Standing Committee on	199, 252, 264
“ Bank, State	123
“ Credit	124, 188, 389, 574
“ Display	386
“ Foreman	7, 9, 64, 65, 126, 187, 266, 510
“ Headman	256, 268, 451, 510, 568
“ Policy	389
“ Shows	7, 8, 98, 126, 127, 138, 183, 196, 237, 262, 266, 269, 270, 292, 453, 454, 511, 570
“ Society, Centenary of Royal	270, 365, 386
Agriculture, Bird Life in Relation to	150
“ Department of	10, 549
“ With Beekeeping	213
Aid to Citrus Growers, Government	268, 326, 386, 445
Analyses of Ackees and Bananas	82
“ Bananas and Ackees	136
An Experiment with White Yams	79
Annatto	265
Annual Statement of Accounts	329, 386, 391
Anti-Erosion Campaign	1, 61, 121, 181, 188, 263, 325, 385, 445, 505, 565
Apologies for Absence	256
Appointment of Assistant Instructors	6
“ Auditor	186
“ Mr. Shirley to Lands Department	8, 186, 200, 389, 509, 571
Appreciation	200, 487
Artichokes, Jerusalem	207
Asparagus Salad, Tomato and	9, 186
Aspinall Testimonial Fund, Sir Algernon	187, 256, 257, 266, 267, 331
Assistant Instructors	182
“ Secretary	9, 258, 266
Associated Branches	330
Association, Jamaica Banana Producers	258
“ of Juvenile Branches	108
“ St. Elizabeth Vegetable and Corn Growers'	63, 254, 334
Auditing of Accounts	6
Auditor, Appointment of	5
“ Recommendations of	327, 569
Auditor's Report	8, 110, 128, 236, 261, 357, 389, 390, 445, 490
Authorised Persons	152
Avocado Culture	

B

Page.

Banana Demonstration Plots	108
Banana Disease 1, 8, 9, 61, 64, 65, 67, 103, 121, 126, 198, 260, 261, 264, 267, 330, 331, 388, 453, 510, 570, 573	570, 573
" Fields, Resuscitation of Storm Damaged	530
" Improvement Campaign	187, 330, 333
Banana-leaf Agar, The Production of <i>Cercospora Musa Conidia</i> in Banana Leaf	621
Banana Soils in St. Mary, Testing of	64
" Varieties	270
Bananas and Ackees	82
" , <i>Cercospora</i> Leaf Spot of 1, 9, 61, 64, 65, 67, 103, 121, 261, 328, 332, 333, 334, 337, 386, 389, 483, 621	483, 621
" , Immature	390, 391, 567
" in England, Marketing of Jamaica	479
" Leaf Spot of, by Wilson Popenoe	337
" Scale insects on	296
Bank, Government Savings	332, 389, 454
Bankrupt Debtors	569
Bank, State Agricultural	123
Banks, Loan	394, 514, 568, 574
Barnes re Society, Comments made by Hon. A. C.	6
Basket Making Industry	10
Bean, String or Kidney	464, 615
Bee a Dependable Pollinating Agent, The Honey	97
" Industry	97, 161, 293, 300
" Instructor	7
Bee-keeping, Agriculture with	213
" Chinese	161
Beet, cooked	10
Better Bee-keeping	300
Better way to thin the Vegetable Rows, The	564
Bird-Life in Relation to Agriculture	150
Birds, Protection of	261, 269
Bitter Oranges	601
Blackeye Pea (<i>Vigna Spp.</i>) The Cow Pea and	406
Blight, Potato	194, 256, 330, 391, 451
Blue Hole River, Cleaning of	388
Board, Food Production	399, 452, 502, 528, 569
" Leaf Spot Control Advisory	121
" of Management	1, 61, 121, 181, 188, 249, 263, 325, 385, 445, 505, 565
" " Leave for members	270
" Room	386, 509
Bombay Mango Extension	126, 330
Bonus to Cane Farmers	389
Box, Rice Threshing	148
Boxes, Duty on Strawberry	255
Branch Membership—Ruling re	9
" Notes	51, 110, 168, 237, 314, 372, 431, 496, 554, 621
Branches Associated	9, 258, 266, 386
" Juvenile 8, 10, 58, 64, 127, 175, 199, 200, 237, 255, 258, 261, 262, 264, 266, 267, 269, 292, 293, 331, 334, 386, 388, 429, 510, 511, 554, 570, 571	331, 334, 386, 388, 429, 510, 511, 554, 570, 571
" Resolutions from	8, 65, 123, 127, 187, 200, 258, 261, 268, 332, 388, 454, 511, 571
Bread for Sale, Wrapping of	262
Breeding Stations for canes, Experiment and/or	192
Budding, Mango	94
Building Materials in connection with Termites	278, 343
Buy the Society's Seeds	146
Buying Centre	10
Bye-Laws of the Society	6, 62, 184, 190

C

Calf, Rearing the	208, 291
Campaign, Anti-Arosion	329, 386, 391
" Banana Improvement	187, 330, 333
" Food Production	309, 510, 513, 573, 590, 615
" Lime Extension	80
" Nutrition	390, 451, 508, 540, 565
" Rat Extermination	184, 352, 510
" Tree Planting	250
Cane Farmers, Registration of	487
" Farming Industry	7, 10, 67, 192, 236, 255, 287, 329, 389, 487
Canes, Sale of Farmers'	236, 255
Canes, Weighing of	67

INDEX

5

C.

	Page.
Care of Seeded Oranges and Grapefruit	211
Carrrd-Pudding, Fruity	41
Cashew Industry	184, 424
Cashew Nut Industry in India, Development of the	424
Cassava Industry	602
Cassava, Notes on	502
Castor Oil	25
Caterpillar, The Tomato	535
Cattle Feed, Waste and rejected citrus for	68
Cattle, Use of Minerals in the Maintenance of Dairy	418
Cement Factory	4, 63, 64, 67, 259, 267, 332, 333
Centenary of Royal Agricultural Society	270, 365, 386
Centre, Vocational Training	388
" Yaws	9
Cercospora Leaf Spot of Bananas 1, 9, 61, 64, 65, 67, 103, 121, 261, 328, 332, 333, 334, 337, 386, 389	483, 621
Certificates from Industrial Institutions	68
Cheese, Salad Tomato and Cottage	207
Chinese Bee-keeping	161
Citrus Committee	259
Citrus for Cattle Feed, Waste and rejected	68
" Fruits, Purchasing of	10
" Growers: Government Aid to	268, 326, 386, 445
" Industry	68, 188, 189, 259, 268, 326, 386, 389, 445, 534, 601, 602
Clarendon, Development of Lower	7, 62, 200
Clerks, Senior	198, 259
Clinics, Dental	10, 332, 388, 389, 511
Clubs, 4-H	488, 505, 570, 577, 580
Coconut Industry	332, 530
" Oil, Measuring of	268
Cooking, Careful	540
Coffee Cultivation, A Few Dents in	101
" Industry	22, 122, 123, 139, 196, 200, 252
" Situation, The	200
Comments made by Hon. A. C. Barnes re Society	6
Commission, Royal	5
Committee, Cement	259, 267
" Citrus	259
" for protection of Birds	261, 269
" Instructors 7, 63, 126, 184, 187, 190, 191, 192, 194, 256, 266, 330, 391, 451, 509, 568	259, 392, 569
" Office	199, 252, 264
" on Agricultural Activities, Standing	139, 252
" on Coffee Industry	195, 251, 264
" on Marketing	577
Committee on proposals for organization of 4-H Clubs	123 187, 252
" on Resolutions	254, 264, 325, 371, 385, 391, 509
Committees in Parishes, Land Settlement	7, 63, 126, 187, 194, 195, 200, 251, 252, 256, 259, 264, 266, 330, 391, 451, 509, 568
" Reports from	328
Comparative Trading Account	390
Compensation for loss through praedial larceny	187, 188, 189, 414, 513, 601
Competition, Citrus	570
" Food Growing	388, 570
" Potato	8, 293, 331, 429
" Vegetable	4, 212, 267, 305, 331
" White Yam	570
" Yellow Yam	305
Composition of Cow's Milk	256, 266
Condensary	181, 189, 332
Condolences	93, 124
Confectionery, Refined sugar for the manufacture of Preserves and/or	7, 126, 187, 194
Conference, Instructors	325
Congratulations to Mr. Cover	121
Control, Advisory Board on Leaf Spot	483
" of Cercospora Muese, Factors affecting the	268
" Marketing of ground provisions and Vegetables	30
Conversion of Horticultural Wastes into Humus	10
Cooked Beet	612
Co-operate, Let us	389
Co-operative Sugar Factories	103
Corn Growers Association, Vegetable and	182, 389
Corn Industry	

C.

Page.

Corn, Maize or (<i>Zea Mays</i>)	399
Cornmill, Loan of	260
Cost of producing crop of ginger	145
Cottage Cheese Salad, Tomato and	207
Country Fires Law	7, 64
Course at Hope	266, 330, 391
Cow, Keep a Milch	102
Cowpea and Black Eye Pea (<i>Vigna Spp.</i>) The	406
Cows, Feeding Honey to	293
Cow's Milk, Composition of	305
Credit, Agricultural	124, 188, 389, 574
“ for Seeds	66
Crop of Ginger, Cost of Producing	145
Crop Rotation, Jamaica Needs	392
Crops for each Parish. Quick	398
Crops, Good seeds—Good	523
Crown Lands	65, 332, 389, 454
Cultivation, A Few Dont's in Coffee	101
“ in Siam, Paddy	225
Culture, Avocado	152

D

Daily Routine, Part of the	544
Dairy Cattle, Use of Minerals in the maintenance of	418
“ Industry, Improvement of	266
“ Practice, Right Methods in	34, 85
Damage, Storm	460, 529, 530, 534
Death of Instructor Henderson	181, 187, 189
“ Hon. H. A. L. Simpson, O.B.E.	61
Debtors, Bankrupt	569
Definition—Individual membership of the Society	5, 62
Demonstration Holdings (Plots)	63, 64, 103, 126, 187, 194, 256, 267, 330, 332, 569
Dental Clinics	10, 332, 388, 389, 511
Department of Agriculture, Comments re work of Society	6, 10
Department of Science and Agriculture, Departmental Notes	549
Department Seeds	327, 573
Depots	388, 389
Deputation, Evidence for Royal Commission: Report of	5
“ on Railway Passes	333
“ re Cement Factory, Report from	64
“ re Tenders for Foodstuffs for Government Institutions	7, 126
Development of Lower Clarendon	7, 62, 200
Development of the Cashew Nut Industry in India	424
Dipping Tanks	67
Disease, Banana 1, 8, 9, 61, 64, 65, 67, 103, 121, 126, 198, 260, 261, 264, 267, 331, 388, 453, 510, 570, 573	232, 309
Diseases of Rabbits	604
Dishes, Meatless	9, 332, 389
Dispensaries, Government	287
Distribution of New Sugar Cane Varieties, The Establishment and	9, 66, 333, 388, 389
District Nurse	523
Do not Destroy the Roots of Peas	269
Dog Show, Use of Marquees for	543
Don't let Depression Get you	311
Dressing, French	222
“ French Fruit	275
“ Hygeia Salad	452, 511, 567
Drought stricken Areas	255
Duty on Strawberry Boxes	

E.

Earth Mulch	618
Elected Members Association re Deputation on Railway Passes	333
Emergency Measures: Storm Damage	460
Emoluments	197, 256, 392, 509
Employer's Liability for Protection of Employees	7, 62, 122
Enemies of Man in Jamaica, Termites as	516
Erosion and Afforestation in Jamaica	350
Erosion Campaign, Anti-	329, 386, 391
Establishment and Distribution of New Sugar Cane Varieties, The	287, 329
“ of Nurseries	269, 572
Estimates	253
Evidence for Royal Commission	5

E.

	Page.
Examination of Vendors	332
Experiment and/or breeding Stations for Canes	192, 329
" with White Yams, An	136
Extension, Bombay Mango	126
Extension Campaign, Lime	80
Extermination Campaign, Rat	184, 352, 510
Extract from Minutes for Company	569

F

Factories, Sugar	389
Factors affecting the control of Cercospora Musae	483
Factory, Cement	4. 63, 64, 67, 259, 267, 332, 333
" Rush	389, 446
Farmers' Canes, Small	10, 236, 389, 487
Farmers, Registration of Cane	487
Farming Industry, Cane	7, 10, 67, 192, 236, 255, 287, 329, 389, 487
" Mixed	81
Farrowing Sow, The	313
Feed, Waste and rejected citrus for cattle	68
Feeding Honey to Cows	293
Fees, Auditors'	334
Fertility, Loss of Soil	181
Fertilizers	75
Field Staff, Leave of Absence	7, 64, 126, 194, 256, 330, 391, 510, 569
" Regrading of	256
" The	271, 509, 528, 568
" The Society's	271
Fields, Resuscitation of Storm damaged Banana	530
Fillings, Sandwich	540
Fire, Protection from	9
Fires Law, Country	7, 64
Flower Seeds	132
Food Crops, Pests attacking Vegetable and other	593
" Grow more	527
" Production 398, 403, 406, 452, 456, 458, 464, 508, 509, 510, 511, 513, 524, 527, 528, 569, 573,	590, 615
" " Board	399, 452, 502, 528, 569
Foodstuffs, Sale of local	194, 591
Foodstuffs to Government Institutions, Tenders for supply of	7, 126, 186
Foremen, Agricultural	7, 9, 64, 65, 126, 187, 200, 266, 510
Forest Reserves in Jamaica	273
Forestry	269, 273
Four H Clubs	488, 505, 570, 577, 580
Fowl Lice	107
" Paralysis	311
" Pox	43
Free Distribution of Plants	65
Free Seeds	554
French Dressing	311
French Fruit Dressing	222
From my Notebook	518
Fruit Trees, Observations on the Pruning of	310, 545
Fruits, Purchasing of Citrus	10
Fruity Carrot Pudding	41
Fund, Sir Algernon Aspinall Testimonial	9, 186

G.

Gardens, School	7, 194, 391, 451
General Meeting, Half-Yearly	6, 21, 63, 124, 208, 265, 329, 387, 389
Ginger, Cost of Producing Crop of	145
" Industry	145, 263, 446
Goat, The	354
Good Seeds—Good Crops	523
Government Aid to Citrus Growers	268, 326, 386, 445
" Assistance for Wet Sugar Industry	389
" Dispensaries	9, 332, 389
" Institutions, Tenders for supplies of Foodstuffs to	7, 126, 186
" Savings Bank	332, 333, 389, 454
Governor, A Message from His Excellency the	576
Grapefruit, Care of Seeded Oranges and	211

G.

	Page.
Gratuity	187
Grove Place, Protection of Tanks at	447
Groundnut or Peanut (<i>Arachia Hypogaea</i>)	465
Grow More Food	527
Gungo or Pigeon Peas (<i>Cajanus indicus</i>) The	403

H.

Half-Yearly General Meeting	6, 21, 63, 124, 208, 265, 329, 387, 389
Hanover Agricultural Show	98
Headman, Agricultural	256, 268, 451, 510, 568
Heads, White Yam	4
Hints, Household	10
Hog Sickness	329, 331, 368, 386, 522, 589
Holding, The Woodplot on the	277
Holdings, Demonstration	63, 64, 103, 126, 187, 194, 256, 267, 330, 332, 569
Honey Bee a Dependable Pollinating Agent, The	97
Honorarium to Accountant	259
Hope, Summer Course at	266, 330, 391
Horses, Order Amending Regulations re Importation of	260
Horticultural Wastes into Humus, The Conversion of	30
Household Hints	10
House, Packing	68
How to form a Loan Bank	514
Humus, The Conversion of Horticultural Wastes into	30
Hygieia Salad Dressing	275

I.

Illegible Reports	329
Importation of Goats	4
" Horses, Order Amending Regulations re	260
Improvement Campaign, Banana	187, 330, 333
" of Dairy Industry	266
Immature Bananas	390, 391, 567
Incorporation of Society	6
Individual Membership of Society, Definition of	5, 62
Industry, Banana	296, 511, 567
" Basket making	10
" Bee	97, 161, 293, 300
" Bombay Mango	330
" Cane Farming	7, 10, 67, 192, 236, 255, 287, 329, 389, 487
" Cashew	187, 424
" Cassava	68
" Coconut	332, 530
" Coffee	22, 122, 123, 139, 196, 252
" Corn	182, 389
" Citrus	68, 188, 189, 259, 268, 326, 386, 389, 445, 534, 601, 602
" Dairy	266, 418
" Ginger	145, 263, 446
" Irish Potato	71, 135, 194, 256, 330, 348, 388, 389, 391, 451, 524, 570
" Jippi-Jappa	68, 194
" Peanut	465
" Poultry	269
" Rice	68, 72, 148, 225
" Strawberry	255
" Tobacco	262
" Tomato	64
" Vegetable	357, 364, 454
" Wet Sugar	389
Industrial Institutions, Certificates from	68
Insects on Bananas, Scale	296
Institutions, Tenders for supplies of foodstuffs to Government	7, 126, 186
Instructor, Bee	7
" Henderson, Death of	181, 187, 189
" Marr, Secondment of	64
" Shirley and appointment to Lands Department	186, 187
Instructors and additional Branches	329
" " Condensary	266
" " Food Production	508
" Assistant	187, 256, 257, 266, 267, 331
" Committee	7, 63, 126, 184, 187, 190, 191, 192, 194, 256, 266, 330, 391, 451, 509, 568

I.

	Page.
Instructors Conference	7, 126, 187, 194
“ Course at Hope	266, 330, 391
“ Increments	330
“ Loans to	7, 194, 256
“ Offices for	510
“ Promotion of	391, 510
“ Questions re change of districts	265
“ Regrading of	256, 330
Instructors' Scholarship	266
Instructors, Temporary	510, 528, 568, 573
Introduction of New Crops	389
Irish Potato Industry	71, 135, 194, 256, 330, 348, 389, 391, 451, 524, 570
Irish Potato Season	71
Items of Trade, Sundry	386

J.

Jamaica Banana Producers Association	330
Jamaica Bananas in England, Marketing of	479
Jamaica, Livestock in	471
“ Needs Crop Rotation	392
“ Welfare Limited, Grant from	8, 334
Jelly, Mexican	454
Jerusalem Artichokes	200, 487
Jippi-Japa Industry	68, 194
Journal	328, 332, 392, 568
Justices of the Peace	262, 332, 334, 390
Juvenile Branches 8, 10, 58, 64, 127, 175, 199, 200, 237, 255, 258, 261, 262, 264, 266, 267, 269, 292, 293, 331, 334, 386, 388, 429, 511, 554, 570, 571	258
“ “ Association of	258

K.

Keep a Milch Cow	102
Kidney Beans (<i>Phaseolus vulgaris</i>)	464, 615

L.

Land Settlement 8, 9, 10, 65, 66, 67, 68, 254, 261, 264, 268, 325, 332, 371, 385, 388, 389, 391, 447, 509, 511, 571	
Lands, Crown	65, 332, 389, 454
Larceny, Praedial	390
Law, Country Fires	7, 64
Leaf Spot and Selection of Bananas	128
“ “ Disease of Bananas 1, 9, 61, 64, 65, 67, 103, 121, 261, 328, 332, 333, 334, 337, 386, 389, 483, 621	
“ “ of Bananas, By Wilson Popenoe	337
Leave of Absence, Board	270
“ “ Field Staff	7, 64, 126, 194, 330, 391, 510, 569
“ “ Office Staff	187, 261, 332, 334, 388, 390, 453, 510, 570
Lecture on Pests attacking Vegetables and other food crops, A	593
Let us Co-operate	612
Lettuce Run to Seed, Why does	357
Letters to Society, Unstamped	522
Liability for protection of Employees, Employers'	7, 62, 122
Lice, Fowl	107
License, Trade	185, 254
Lime Extension Campaign	80
Limes, Seedless	126
List of Membership of the Society	10
Livestock in Jamaica	471
“ the West Indies	44, 104, 163, 220, 301, 369, 411, 492
Loan Bank, How to Form a	514
Loan Banks	394, 514, 568, 574
Loan of Cornmill to Marketing Department	260
Loans	513
“ to Instructors	7, 194, 256
Local Foodstuffs, Sale of	194
Lord Olivier, Address by the Right Honourable	13
Loss of Soil Fertility	131
Low Temperature Station, Returns from	10
Lower Clarendon, Development of	7, 62, 200
Loyalty	567, 571

M.

Page.

Machinery for grinding Stock Feed	184
Maintenance of Dairy Cattle, Use of Minerals in the	418
Maize or Corn (<i>Zea Mays</i>)	399
Major G. B. Pease re Sundry Items of Trade	386
Malaria, Control of	388
Management, Board of 1, 61, 121, 181, 188, 249, 263, 325, 385, 445, 505, 565	565
Mango Budding	94
Extension, Bombay	126, 330
Manufacture of Preserves and/or Confectionery, Refined Sugar for the	93, 124, 183
Marketing 5, 8, 10, 182, 195, 204, 251, 260, 263, 264, 268, 325, 333, 388, 389	389
Notes	48, 108, 167, 235, 313, 416, 490
of Jamaica Bananas in England	479
Scheme	5
Markets, Preparing Products for	33
Marquees	269
Marr, Secondment of Instructor W. D.	64
Maternity Nurse	333
Maxwell re Bye-Laws of the Society, Mr.	62
Measures, Emergency	460
Measuring of Coconut Oil	268
Meatless Dishes	604
Medical Services	9, 262, 389
Meeting, Half-Yearly	6, 21, 63, 124, 208, 265, 329, 387, 389
Members, New 9, 66, 127, 187, 199, 261, 269, 333, 390, 454, 510, 573	573
Wanted, New	470
Membership of Branches: Ruling re	9, 62
Society	5, 9, 10, 62, 388
Memorandum re 4-H Clubs	580
Message from His Excellency the Governor, A	576
Methods in Dairy Practice, Right	34, 85
Mexican Jelly (Cucumber)	454
Milch Cow, Keep a	102
Milk, Composition of Cows'	305
Minerals in the maintenance of Dairy Cattle, Use of	418
Minor Products, Protection of	389
Minutes, Confirmation of 1, 61, 121, 181, 189, 249, 264, 325, 385, 445, 505, 565	565
Mixed Farming	81
Mulch, Earth	618

N.

Necessity of Re-afforestation in St. Catherine, Observations on the	134
Nests, Wasps	533
New Crops, Introduction of	389
New Members 9, 66, 127, 187, 199, 261, 269, 333, 390, 454, 510, 573	573
Wanted	470
New Sugar Cane Varieties, The Establishment and Distribution of	287
Notes, Branch 51, 110, 168, 237, 314, 372, 431, 496, 554, 621	621
Departmental (Department of Science and Agriculture)	549
Marketing	48, 108, 167, 235, 313, 416, 490
Poultry	40, 43, 107, 231, 311, 552
on Ackee (<i>Blighia Sapida</i>)	430
on Cassava	602
Nurse, District	9, 66, 333, 388, 389
Nurseries	186, 269, 329, 572
Nutrition Campaign	390, 451, 508, 540, 565
in Jamaica, Society's Activities in Furthering the cause of	565
in War Time	611

O.

Obituary	543, 589
Observations on the Necessity of Re-afforestation in St. Catherine	134
Pruning of Fruit Trees	310, 545
Office Committee	259, 392, 569
Staff 187, 198, 256, 259, 261, 332, 334, 388, 390, 392, 453, 509, 510, 569, 570	570
Registrar	332
Offices for Field Staff	510, 568
Sub-	515, 569
Oil, Castor	25
Olivier, Address by the Right Honourable Lord	13
Onions, Production of	359
Orange Competition	187, 188, 189, 414, 513, 601

O.

	Page.
Oranges and Grapefruit, Care of seeded	211
Order Amending Regulations re Importation of Horses	260
Organization of 4-H Clubs, Report of Committee on proposals for	577
Our Products in the Southern Dominions	367
Outstanding Accounts	259, 392, 569

P.

Paddy Cultivation in Siam	225
Pamphlets (Food Production)	399, 403, 406, 464, 465, 524, 611
Panama Disease of Bananas	8, 64, 126, 198, 260, 264, 267, 331, 388, 453, 510, 570, 578
Papaw or Papaya	215
Paralysis, Fowl	311
Parishes, Land Settlement Committees in	254, 264, 325, 371, 385, 391, 501
Part of the Daily Routine	544
Parochial Dispensaries	9, 332, 389
Pass, Free Railway	4, 62, 122, 293, 265, 333
Peace, Justices of the	262, 332, 334, 390
Packing House	68
Peanut Recipes	536
Peanuts	465, 536
Peas	403, 406, 464, 615
Peas, Do not destroy the Roots of	522
Pensions	391, 451, 508, 566
Perenox—Use and Storage of	297
Persons, Authorised	8, 110, 128, 236, 261, 357, 389, 390, 445, 490
Pests attacking Vegetables and other Food Crops, A Lecture on	593
Pigeon Pea (<i>Cajanus indicus</i>) The Gungo or	403
Pigs, Sickness of	329, 331, 368, 386, 522, 589
Plan of Juvenile work	334
Planting Campaign, Tree	250
Plans, Land Settlement	447
Plant or Soil Research	618
Plants, Free Distribution of	65
Plots, Banana Demonstration	103
Plots, Demonstration	63, 64, 103, 126, 187, 194, 256, 267, 330, 332, 569
Police Station	389
Policy, Agricultural	389
Pollinating Agent, The Honey Bee a Dependable	97
Possible Shortage of Foodstuffs	456
Postal Services	66, 67, 187, 262, 388, 389
Potato Blight	194, 256, 330, 391, 451
“ Competition	388, 570
“ Industry, Irish	71, 135, 194, 256, 330, 348, 388, 389, 391, 451, 524, 570
“ Scab	135
“ Season, Irish	71
Potatoes, Seed	348, 389
Poultry Industry	269
“ Notes	40, 43, 107, 231, 311, 552
Pox, Fowl	43
Prædial larceny	390
Practice, Right Methods in Dairy	34, 85
Preparation of Poultry	40
Preparing Products for Market	33
Preservation of Trees	185, 189, 250
Preserves and/or Confectionery, Refined Sugar for Manufacture of	93, 124
Price for Small Farmers' Canes	10, 255
Prices for Foodstuffs	591
Producers' Association, Jamaica	330
Producing crop of Ginger, Cost of	145
Production, Food	398, 403, 452, 464, 508, 509, 510, 511, 513, 524, 528, 569, 573, 590, 615
“ of Cercospora Musae Conidia in Banana Leaf Agar, The	621
“ of Onions	359
Products, Cassava	68
“ for Market, Preparing	33
“ in the Southern Dominions, Our	267
Professional Services, Account for	6
Profiteering, Government's action against	571
Project, Tomato Growing	64, 187, 298, 330, 510
Promotion of Instructors	391, 510

P.

	Page.
Protection from Fire—Bog Walk—	9
“ of Birds	261, 269
“ of Employees, Employers' Liability for	62, 122
“ of Minor Products	389
“ of Tanks at Grove Place	447
Pruning Fruit Trees	545
“ of Fruit Trees, Observations on the	310
Pruning, Unhealthy conditions of trees restored by root	602
Pudding, Fruity Carrot	41
Purchasing of Citrus Fruits	10

Q.

Quick Crops for each Parish	398
-----------------------------	-----

R.

Rabbits, Diseases of	232, 309
Railway Passes for Members of Board	4, 62, 122, 193, 265, 333
“ Siding	262
Rat Extermination Campaign	184, 352, 510
Re-afforestation in St. Catherine, Observations on the Necessity for	134
Rearing the Calf	208, 291
Recipes	108, 207, 222, 536, 604
Recommendations of Auditor	327, 569
Red Pea, The	464, 615
Reduction of the price of Sugar for Preserves	93, 124, 183
Registered Titles	389
Registrar Office	332
Registration Form (Food Production)	458
“ of Cane Farmers	487
Regrading of Instructors	256, 330
“ Position of Accountant	259
“ Senior Clerks	259
Regulations re importation of Horses, Order amending	260
Rejected Citrus for Cattle Feed, Waste and	68
Relief Work	65, 388, 390
Routine, Part of the daily	544
Royal Commission	5
Report, Auditors'	327, 569
“ from Instructors Committee	7, 63, 126, 184, 187, 190, 191, 192, 194, 256, 266, 330, 391, 451, 509, 568
“ of Committee on proposals for Organization of 4-H Clubs	577
“ of Department of Agriculture, 1938	10
“ of Deputation re Cement Factory	64
Report of Deputation to Government re Tenders for Local Foodstuffs	126
“ “ Royal Commission	5
“ on Coffee Industry	123, 252
“ on White Yam Competition	331
Reports from Committees	7, 63, 126, 187, 194, 195, 200, 251, 252, 256, 259, 264, 266, 330, 391, 451, 509, 568
“ Illegible	329
Representation at Centenary of Royal Agricultural Society, Society's	270, 365, 386
Research, Plant and Soil	618
Reserves in Jamaica, Forest	273
Resignations	64, 187, 510
Resolutions, Committee on	123, 187, 252
“ from Branches	8, 65, 123, 127, 187, 200, 258, 261, 268, 332, 388, 454, 511, 571
Resuscitation of Citrus Trees	534
“ Storm Damaged Banana Fields	530
Retirement of Sir Algernon Aspinall	9
Returns from Low Temperature Station	10
Rice Industry	148, 225
Rice Threshing Box	148
Right Methods in Dairy Practice	34, 85
Roads	9, 65, 66, 68, 262, 270, 333, 334, 388, 389, 390, 509
Roll, Voters'	10
Room, Board	509
Root Pruning, Unhealthy Condition of Citrus Trees Restored by	602
Roots of Peas, Do not destroy the	523
Rotation, Jamaica needs Crop	392
Royal Agricultural Society	270, 365, 386

R.

Page.

Ruling re Membership of Branch Members	9
"Rush"	389, 446

S.

Salad Dressing, Hygieia	275
" Summer	108
" Tomato and Asparagus	207
" " Cottage Cheese	207
Sale of Farmers' Cane	236, 255
" Local Foodstuffs	194, 591
Sandwich Fillings	540
Savings Bank, Government	332, 333, 389, 454
Scab, Potato	135
Scale Insects on Bananas	296
Scheme, Marketing	5
" Nutrition	390
Scholarship, Instructors'	266
School	9, 10, 68, 262, 388, 389
" Garden	7, 194, 391, 451
Secondment of Instructor Marr to Department of Agriculture	64
Secretary, Assistant	182
Secretary's Emoluments	197
" Report on Travelling	8, 187, 270, 331, 570
Seed Potatoes	348, 389
Seeded Oranges and Grapefruit, Care of	211
Seedless Limes	126
Seeds, Buy the Society's	146
" Credit for	66
" Department	327, 573
" Flower	132
" Free	554
Selection of Bananas, Leaf Spot and	128
Senior Clerks	198
Service, Stud	110
Services, Account for Professional	6
" Medical	9, 262, 389
" of Secretary	263, 265, 268, 326, 333, 388, 451
" Postal	66, 67, 187, 262, 388, 389
Settlement, Land 8, 9, 10, 65, 66, 67, 68, 254, 261, 264, 268, 325, 332, 371, 385, 388, 389, 391, 447, 509,	511, 571
Shortage of Foodstuffs, Possible	456
Shows	7, 8, 98, 126, 127, 138, 183, 196, 237, 262, 266, 269, 270, 292, 453, 454, 511, 570
Siam, Paddy Cultivation in	225
Sickness, Hog	329, 331, 368, 386, 522, 589
Siding, Railway	262
Signs, Traffic	9, 10, 68
Simpson, Death of Hon. H. A. L.	61
Sir Algernon Aspinall Testimonial Fund	9, 186
Situation, The Coffee	208
Small Stock	4, 64, 128, 184, 187, 198, 260, 262, 267, 368, 388, 451, 619
Society, Bye-Laws of the	6, 62, 184, 190
" Definition of Individual Membership of	5, 62
" Incorporation of	6
" Membership of the	5, 9, 10, 62, 388
" Royal Agricultural	270, 365, 386
Society's activities in furthering the cause of Nutrition in Jamaica	565
" Field Staff, The	271
" Seeds, Buy the	146
Soil Erosion Campaign	329
Soil Fertility, Loss of	131
Soil Research, Plant and	618
Southern Dominions, Our Products in The	367
Sow, The Farrowing	313
Spraying of Potatoes	194, 330, 451
Staff Leave, Field	7, 64, 126, 194, 256, 330, 391, 510, 569
" Office	187, 261, 332, 334, 388, 390, 453, 510, 570
" The Society's Field	271
Standing Committee on Agricultural Activities	199, 252, 26
State Agricultural Bank	12
Statement, Annual	

S.

Page.

Statement of Accounts	5, 62, 122, 184, 190, 253, 265, 327, 386, 446, 567
Station, Returns from Low Temperature	10
" Stud	389, 619
Stations for Canes, Breeding	192, 329
St. Catherine, Observations on the Necessity for Re-afforestation in	134
St. Mary, Banana Soils in	64
Stock, Small	4, 64, 128, 184, 187, 198, 260, 262, 267, 368, 388, 451, 619
Storm Damage	460, 529, 530, 534
Strawberry Boxes, Duty on	255
String or Kidney Bean (<i>Phaseolus vulgaris</i>)	464
" " The Red Pea	615
Stud Service	110, 389, 619
Sub-offices of the Society	515, 569
Subsidies	64, 128, 187, 198, 260, 262, 267, 388, 451, 570
Sugar Cane Nurseries	329
" Factories	389
" for the manufacture of Preserves and/or Confectionery, Refined	93, 124, 183
Summer Course at Hope	266, 330, 391
Summer Salad	108
Sunday Trade in Bananas	511
Sundry Items of Trade, Correspondence with Major G. B. Pease re	336
Supervisors, Offices for	510
" of Instructors	510, 528, 568, 573
Supplies of Foodstuffs to Government Institutions	7, 126, 186
Supply of Tanning Materials in Jamaica	295
Sweet Potato Competition	388

T.

Tank, Dipping	67
Tanks, Protection of	447
Tanning Materials in Jamaica, Supply of	295
Temporary Instructors	510, 528, 568, 573
Tenders for supplies of Foodstuffs to Government Institutions	7, 126, 186
Termites as enemies of man in Jamaica	516
Termites, Building Materials in connection with	278, 343
Terracing	128
Testimonial Fund, Sir Algernon Aspinall	9, 186
Thin the Vegetable Rows, The Better Way to	364
Threshing Box, Rice	148
Thrips	330
Time Limit for Speeches at Half-Yearly meetings	389
Titles, Registered	389
Tomato and Asparagus Salad	207
" " Cottage Cheese Salad	207
" Caterpillar, The	535
" Growing Project in Southern Manchester	64, 187, 298, 330, 510
" Industry	64, 284
Trade Licences	185, 254
Trade, Sundry Items of	386
Trading Accounts, Comparative	328
Traffic Signs	9, 10, 68
Training Centre, Vocational	388
Travelling Expenses for Bee Instructor	7
" Secretary's Report on	8, 187, 270, 331, 570
Tree Planting	250
Trees, Observations on the Pruning of Fruit	310, 545
" Preservation of	185, 189, 250
Trees, Resuscitation of Citrus	534
Tuberculosis, Spread of	388

U.

Unhealthy Condition of Citrus Trees restored by Root Pruning	602
Unstamped Letters to Society	522
Use of Minerals in the maintenance of Dairy Cattle	418

V.

Varieties, Banana	270
" The Establishment and Distribution of New Sugar Cane	287
Vegetable and Corn Growers' Association, St. Elisabeth	108

V.

	Page.
Vegetable Competition	8. 293, 331, 429
“ Industry	357, 364, 454
“ Plot	454
“ Rows, The Better Way to Thin the	364
Vendors, Centres for Examination of	332
Vocational Training Centre	388
Voters Roll	10

W.

War Time, Nutrition in	611
Wasp Nests	533
Waste and Rejected citrus fruit for cattle feed	68
Wastes into Humus, The conversion of Horticultural	30
Water Supply	9, 67, 68, 332, 333, 334, 388, 390, 511
Weighing of canes	67
Welcome to Mr. Burke	325
Welfare Limited, Jamaica	8, 334
West Indies, Livestock in the	44, 104, 163, 220, 301, 369, 411, 492
West Indies Sugar Company	266
Wet Sugar Industry	389
What Planters can do to minimise damage usually caused by Pests attacking Vegetables, and other Food Crops	593
White Yam Competition	4, 212, 267, 305, 331
“ Heads	4
White Yams, An Experiment with	136
Why does Lettuce run to Seed	357
Windbreak and the Storm	620
Wild Birds, Committee on Protection of	261
Woodplot on the Holding. The	277
Wrapping of bread for sale	262

Y.

Yam Competition, White	4, 212, 267, 305, 331
“ Heads, White	4
Yams, An Experiment with White	136
Yaws Centres	9
Yellow Yam Competition	570

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